

FEBRUARY • 1959

M
TECHNOLOGY DEPARTMENT

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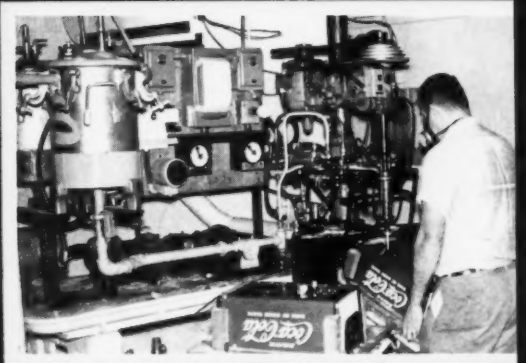
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At The Glidden Company...



At The Glidden Company, paint drippings from a pebble and steel ball mill are easily cleaned off the Epon resin-based exterior surface coating with a solvent-dipped rag.

Chemical-resistant Epon[®] resin-based coatings guard paint production equipment from corrosion ...greatly reduce maintenance costs

At one of the paint production plants of The Glidden Company, enamel coatings on equipment were often stripped down to bare metal in only 30 days by the corrosive action of caustic cleaners. Maintenance costs were high.

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Epon resin-based paint, Nu-Pon Cote.

Even though the Epon resin-based coatings are constantly exposed to hot caustic soda solutions, solvents, paint splashes, and abrasion, a fast washing down with solutions of petroleum and ester solvents keeps them clean and bright. Equipment is completely free from corrosion. *The Epon resin-based coatings have already lasted 4 times longer than the previous enamels.*

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Call on Shell Chemical sales offices for names of suppliers. Write for the full Epon resin coatings story, **PLANNING TO PAINT A PYRAMID?**

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CHICAGO • CLEVELAND • LOS ANGELES • NEW YORK
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How the Armco Stainless "Wardrobe" of Finishes Can Help You Save

No matter how they are finished on the outside, Armco Stainless Steels are always the same high-quality, corrosion-resisting steels all the way through. But you can save money by specifying the *one finish* from the Armco Stainless "wardrobe" that best suits your product's needs and requires the fewest additional finishing operations in your plant.

MANY ARMCO FINISHES TO CHOOSE FROM

Because they serve in many different products, Armco Stainless Steels are available in a wide variety of surface finishes.

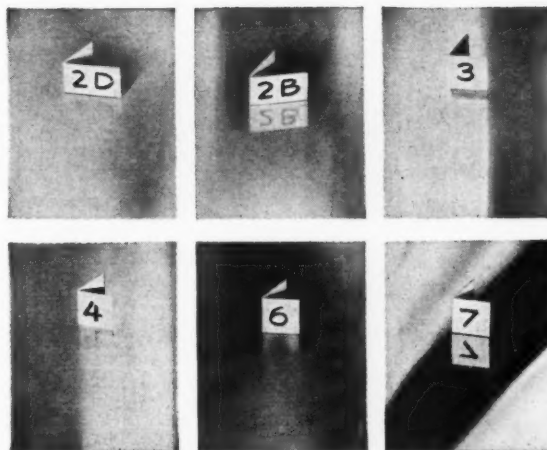
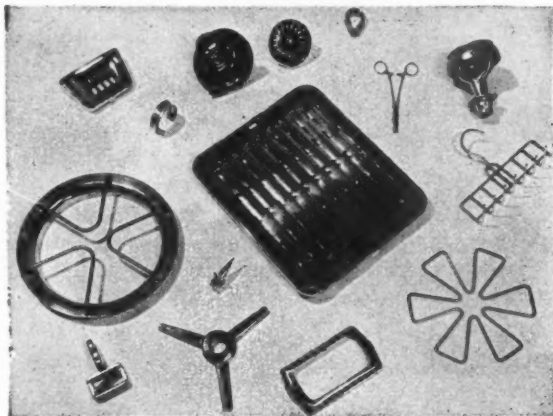
Tough jobs call for workclothes. One of the unpolished surface finishes is generally most economical in high-temperature industrial uses, involving highly oxidizing or very corrosive atmospheres. On the other hand, when appearance, sanitation, or easy cleaning come first, a polished stainless surface is required.

Patented Armco processes offer additional possibilities. Small parts and intricately-shaped pieces can be economically polished by Armco's electropolishing process. Another Armco process "Ebonizes" (blackens) stainless steel parts.

BROAD RANGE OF STAINLESS

Remember, too, Armco Stainless Steels are available in a wide range of standard and special grades—in gages, sizes, and shapes to suit design needs. For more information about Armco's Stainless Steels or their surface finishes, just fill in and mail the coupon or call your nearest Armco Sales Office.

Small or intricately-shaped stainless pieces like these can be economically polished by the Armco Electropolishing Process.



Pictured are six of the eight mill finishes available on Armco Stainless Steels. No. 2B and No. 2D Sheet Finishes correspond to No. 1 and No. 2 Strip Finishes, respectively. Not shown are the hot-rolled, annealed and pickled No. 1 Sheet Finish for industrial products and the new Armco **SOFTONE** Finish for Type 430 Stainless Steel strip. **SOFTONE** was developed to provide a soft, lustrous surface, yet avoid mirror-like reflectivity.

Here's a demonstration of the durability of the blackened finish produced on stainless steel by the Armco Ebonizing Process. After 10 years' exposure in a mild industrial atmosphere, a simple waxing (upper part) brings out the full finish beauty of this Ebonized sample.



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VOL. 16 • NO. 2

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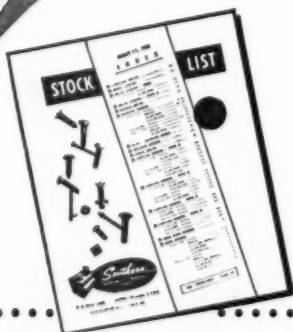
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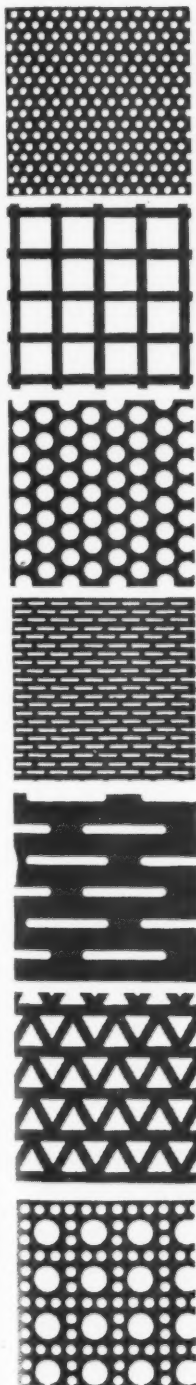
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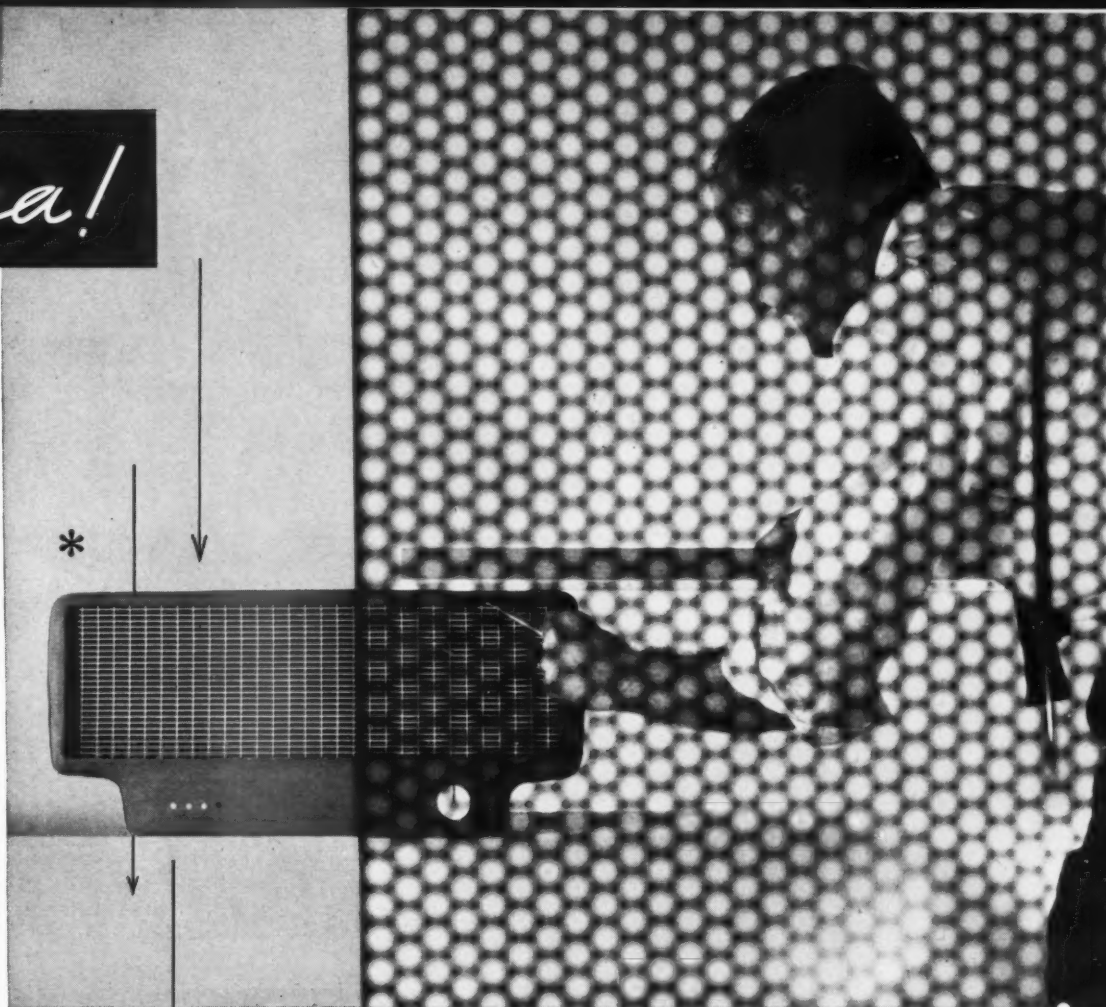
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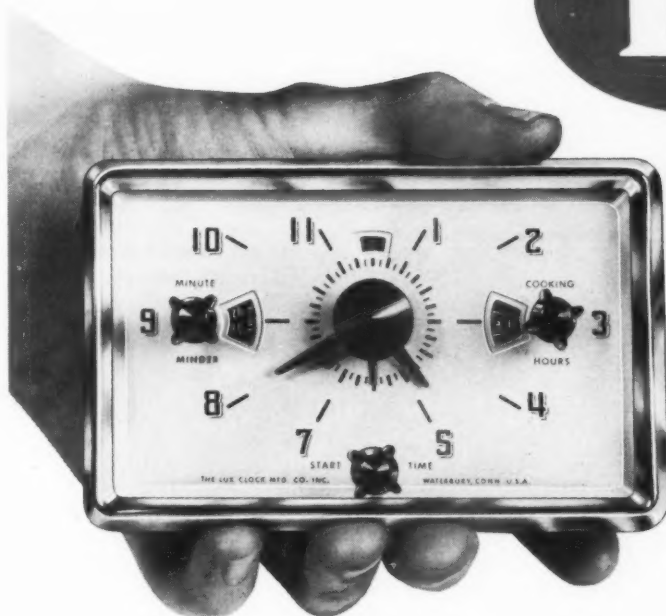
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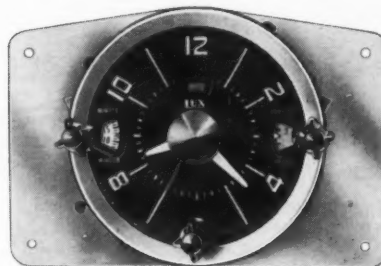
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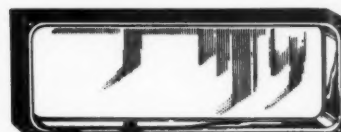
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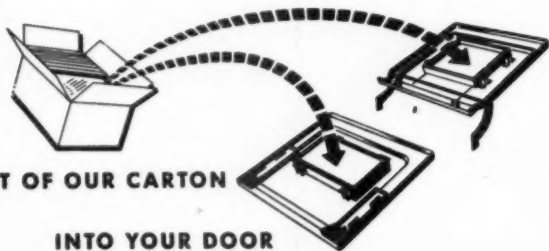
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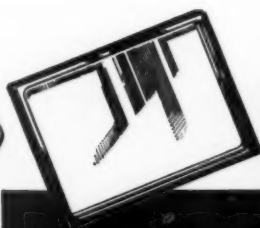
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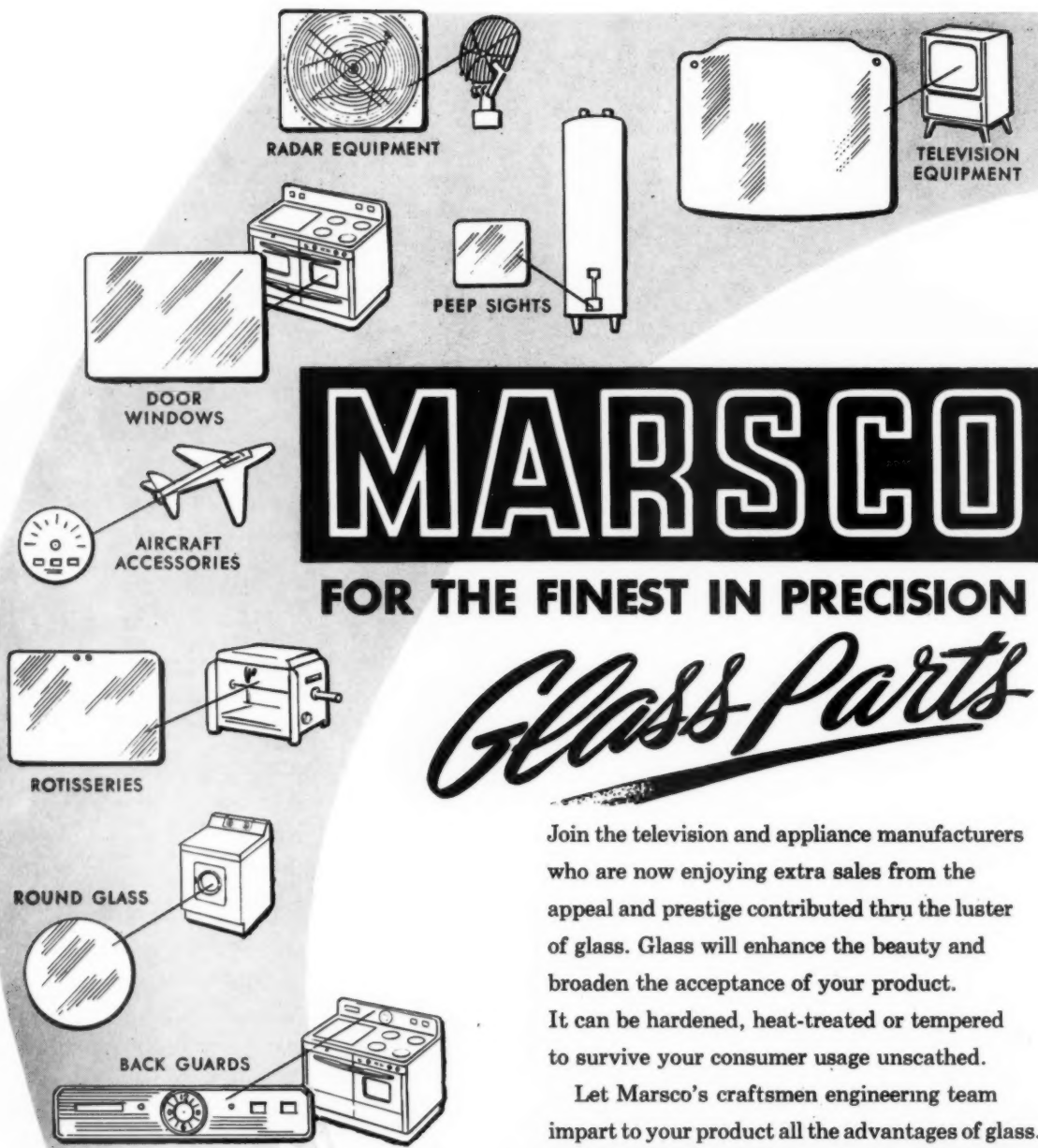
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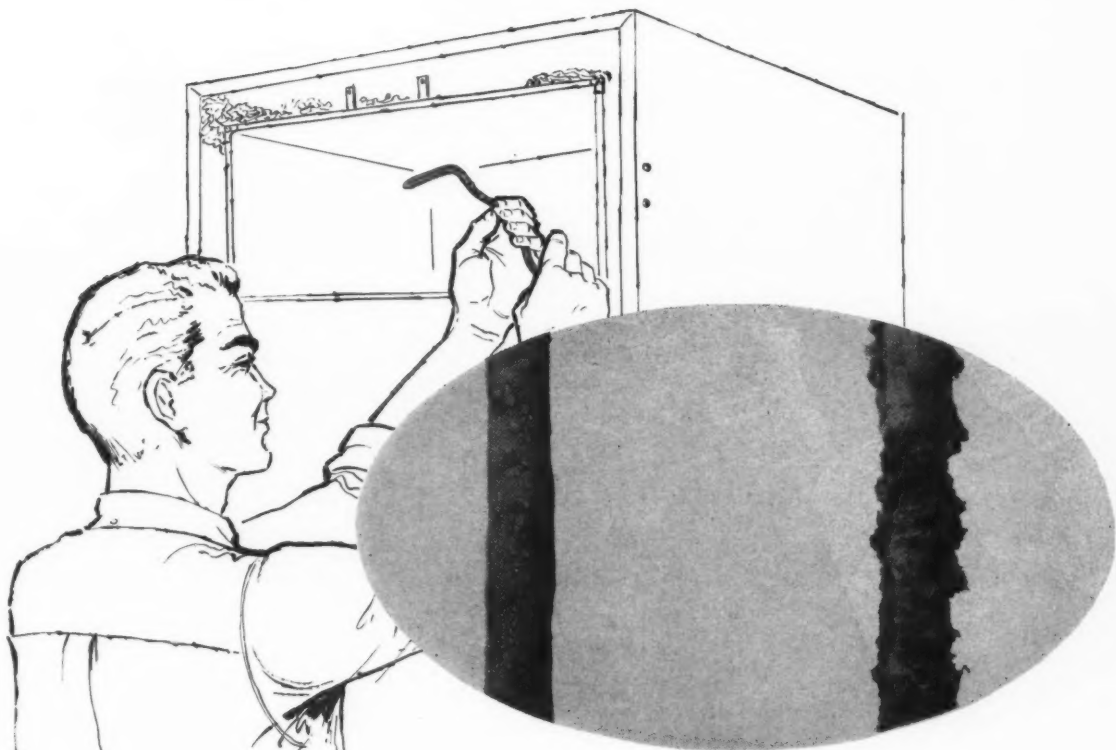
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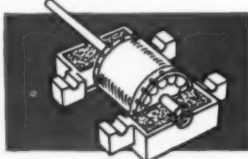
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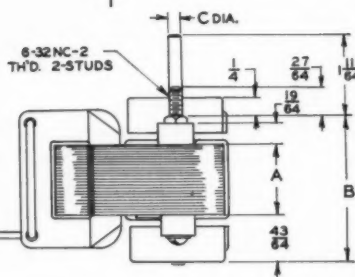
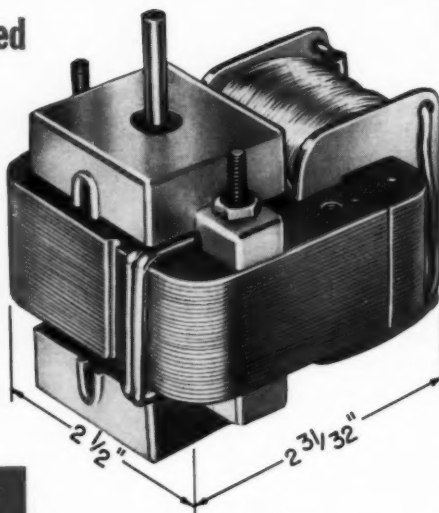
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H-6-CW H-6-CCW	1/150	1.40	2.20	3375	.270	12.5	3/4"	1 5/8"	.1817"	1.8
H-7-CW H-7-CCW	1/110	1.55	2.50	3400	.290	13.0	7/8"	1 5/8"	.1817"	1.9
H-8-CW H-8-CCW	1/100	1.85	3.00	3400	.300	15.0	1"	2 1/4"	.1817"	2.0
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from the Editor's Mail

Missiles and space systems

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Please send one (1) copy each of the 1959 issues to the attention of the Missiles and Space Systems Library, Department A-260.

R. L. Johnson, Chief Engineer
Missiles and Space Systems
Douglas Aircraft Co., Inc.
Santa Monica, Calif.

Statistics of interest

Gentlemen: I am interested in obtaining metal products statistics similar to those published in your monthly trade magazine, METAL PRODUCTS MANUFACTURING. Specifically, I need product, shipment, and sales figures for the year 1950 through 1958. If you have such statistics available, would you please let me know.

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M. C. Hill, Jr., Factory Management
Sears, Roebuck and Co.
Chicago, Ill.

Excellent reference material

Gentlemen: We would appreciate it very much if you would put us on your mailing list to receive the METAL PRODUCTS MANUFACTURING magazine, as issued, for our Engineering Library. At present, we are using copies addressed to L. L. Burke, who is no longer with the company.

METAL PRODUCTS MANUFACTURING magazine furnishes excellent reference material for our library; therefore, we would like to continue receiving the issues if it can be arranged.

L. R. Challinor, Engineering Librarian
Avco Mfg. Corp., AK Div.
Connersville, Ind.

It's a pleasure to know that the engineering library at Avco AK Div. finds MPM useful. The deletion and addition were made promptly. Eds.

Lockheed research wants back issues

Gentlemen: Please advise whether we may be placed on your mailing list to receive copies of MPM as they are issued.

We would also be interested in obtaining issues from March through December, 1958 if available. If there is a

to Page 67 →

GUESTS LATE?

ROAST RUINED?

Never Again!

New

KING-SEELEY ROAST CONTROL*

**Assures Perfect Roasts,
Keeps 'em that way**

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K-S ROAST CONTROL removes all uncertainty. She sets the control the way she wants the roast. K-S ROAST CONTROL takes over for her. She sets it, forgets it, serves it whenever she wants it.

HOW?

K-S ROAST CONTROL anticipates desired doneness—reduces oven heat to inside roast temperature and holds it there for as long as necessary till the roast is served—Hot, Juicy, Just Right.

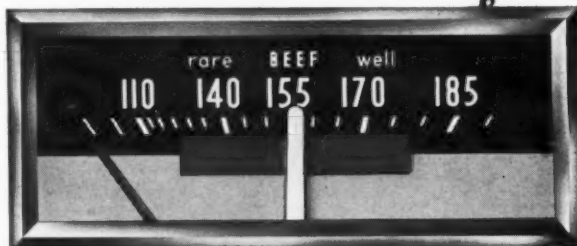
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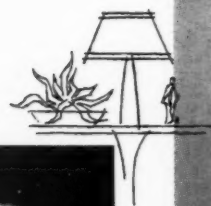
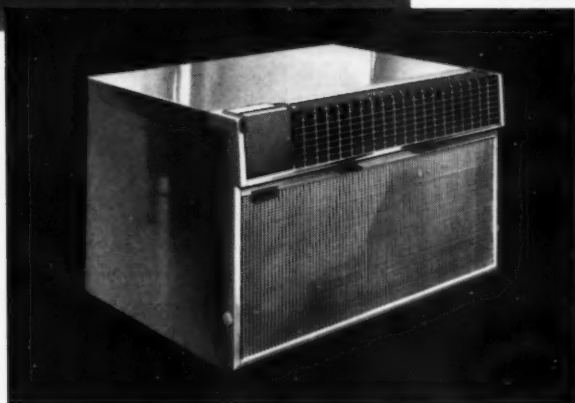
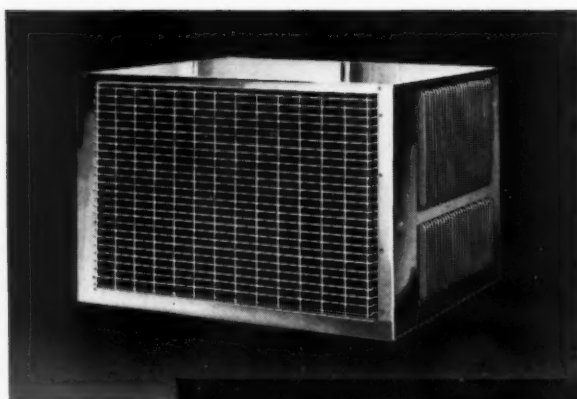
MPM FEBRUARY • 1959



8236

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his for Air Conditioners

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THERMO-SETTING ACRYLIC ENAMEL

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This amazing new acrylic enamel effects substantial cost savings at the same time that it assures color holding and outstanding exterior durability that *can be duplicated only by multiple coats of high-quality conventional baking enamel.*

DURACRON can be applied by a variety of high-speed methods even on difficult-to-finish parts. It can be used as a one-coat finish over cold rolled steel on condenser units, saving the cost of premium-priced metals.

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Extensive laboratory and field tests, as well as widespread use by leading manufacturers, have demonstrated convincingly DURACRON's superior performance and cost savings. Why not investigate how it can save you time and money without sacrificing quality?

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research-developed



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NEW NORDALL emulsion cleaner locks out rust safely!



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For details of this extraordinary rust-proofing emulsion cleaner, call in your Wyandotte representative soon. TODAY, perhaps? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

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CHICKEN FEED AND METAL PRODUCTS

A GUEST EDITORIAL *by Bennett Chapple*

THIS IS AN EXPERIENCE I'll never forget. It taught me the value of enthusiasm.

It happened on a train. Some years ago, I was traveling south on business. I was in the dining car and had just ordered breakfast. As I sat there, a young man about 35 entered. He joined me at my table and we exchanged good mornings. Soon, our conversation, after a period of generalities, got into things more specific. As we looked out of the train window, we saw some farms. In one barnyard we saw a large flock of chickens coming out for their morning feed.

That was when my young friend took the spotlight. He began to talk about chickens. Instantly, I became interested because the enthusiasm he had for his subject convinced me that what he was saying was important. His talk was alive, filled with information. He told me about the nation's prize hen and how many eggs she laid. He told me about the different personalities of chickens—from Plymouth Rocks to Leghorns. He told me what a tremendous industry the raising of chickens was throughout our country . . . how important chicken feed was if a farmer was to get a proper return on his investment. I learned about the different kinds of chicken feeds that had been created through years of research. He remarked that the butter and egg and chicken money from America's farms would probably pay more college tuitions for farm children than any other single fund in the country. It was the first time that I ever realized that the rooster played an important part in our educational system.

Well, he fascinated me with the information he had. And the way he told it. Not dry figures, but interesting, human, fact-filled information.

As we sat rolling through the country, I found myself tremendously influenced by what he had said. We would pass a farm. As I looked at it, I thought to myself, "What? No chickens? That farmer is missing a good bet!" I found myself beginning to realize that a farm house without chickens wasn't living up to its opportunities. And it certainly wasn't adding to the educational forces of America.

Well, he got off at Macon. As he left the train, he bid me a cheery goodbye and gave me his card. I had wondered who this interesting gentleman was. Certainly he must have held some high position in agriculture, judging from the way he talked. His card gave me the answer—he was a chicken feed

EDITOR'S NOTE:

Bennett Chapple, author of this guest editorial, is a retired Armco Steel executive residing in Pittsburgh. MPM readers who have had the pleasure of knowing "Ben" Chapple will know that the enthusiasm about which he writes is one of the outstanding traits of the writer himself.

Whether we are considering chicken feed or appliances, good old fashioned enthusiasm (backed by product and industry knowledge), is still one of the most potent forces in successful selling. Let's hope we see more of it in the market places during 1959.

salesman. It was hard to believe. I said to myself, "Here I am a vice president of Armco, a large steel company in a big, he-man business . . . yet at the breakfast table this man who sells chicken feed backed me and my industry clear off the map." I had forgotten I was in the steel business; he had put me in the chicken feed business. He had given me insight into the importance of chicken feed in our daily lives. The enthusiasm this man had for his business, which he knew so well, and could share so well, had carried me off my feet.

I knew then that this was an example of what I should do in my own life—that I, too, should carry on my work with a higher degree of enthusiasm. I should be ready always to tell other people about my work, and not be afraid to show the happiness I enjoyed in doing it. Enthusiasm is an important and necessary ingredient in anything that we do. Enthusiasm, when we share it with others, can help us find added pleasure in our work. It can bring happiness to us through our jobs, just as it did to that young chicken feed salesman. With enthusiasm, we can get more satisfaction out of our work than we ever expected.

Simply doing a day's work for a day's pay is not enough. It is important, I believe, to realize the role we are playing in the scheme of things, no matter how small. It doesn't matter if a man is working in the selling end or in production. The thing he is doing is of interest to others simply because they don't know enough about it. People, too often, hesitate to talk about their work because they think it will bore others. But if they have something interesting to say, they will never bore people. Enthusiasm creates that interest.

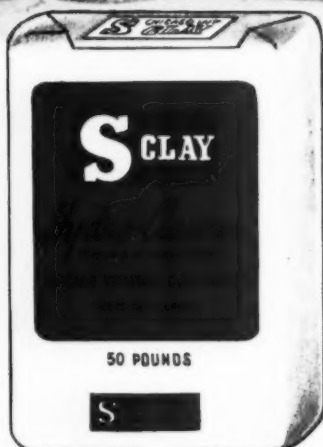
We should all carry a great wad of enthusiasm around with us wherever we go. That young man made me forget that I, too, was in a very fascinating business. He had a great appreciation for the influence his line of work had on other people.

He must have been a very happy man. And a very successful chicken feed salesman.

CHICAGO VIT
Introduces **2 NEW CLAYS**
FOR LOWER FIRING ENAMELS



A portion of the Chicago Vit clay refining plant where uniform "Hydro-Cleaned" clay is produced.



For Finest Frit—Chicago Vit

S CLAY,

Hydro-Cleaned

S clay is a hydro-cleaned clay with high set characteristics and good set stability. It is recommended for use in cover coats where its set properties will allow a reduction in clay content to effect improved acid resistance.

Here, now, are 2 new clays especially developed by Chicago Vit for use in today's lower firing enamels. The study and development of clay blending and clay performance, carried on over the years, is one more unheralded service of the Chicago Vit research and development laboratories. The over-all result is simply this: You can demand and get from Chicago Vit a clay that has been blended to impart particular characteristics that assure you of better enameling results and higher quality in your finished products.



Z CLAY,

Air-Floatated

Z clay is an air-floated clay with medium high characteristics and good suspending properties. It was selected for use in low temperature ground coat enamels because it provides good workability and early maturity. It is generally used in combination with X clay to develop optimum bubble structure. It has good set stability.

You will find it advisable to discuss clays with your Chicago Vit representative. He will be pleased to recommend those most suited to your needs.

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A Division of the Eagle-Picher Company

FRIDAY

23

JAN. 1959

JANUARY						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

12:00 lunch with Jack

Bring up at Monday meeting -
Inland steel co. now furnishes
enameling iron in coils -
should mean -

- ① Inventory Consolidation
 - ② Lower labor costs
 - ③ Continuous operations
- increased production

Comes in widths up to 60"
16 to 24 gage inclusive - coils inside
diam 24" - max outside diam 72"
Coil weights up to 47000 lb.

23 -

FRI., JAN. 23, 1959

- 342

Coors GRINDING BALLS

HIGH DENSITY (SP. GR. 3.4)

SPEED GRINDING

at 5 Whirlpool corporation plants

ST. JOSEPH, MICH. / CLYDE, OHIO / ST. PAUL, MINN. / AND BOTH EVANSVILLE, IND. PLANTS

"In June 1956, we started milling porcelain at our new St. Joseph, Michigan plant. Our mill room was equipped with 4 mills—two of 3000 lb. and two of 4000 lb. capacity. These were charged with Coors High Density Grinding Balls.

"In these mills, our ground coat is ground to the proper fineness in approximately 4 hours and the cover coat

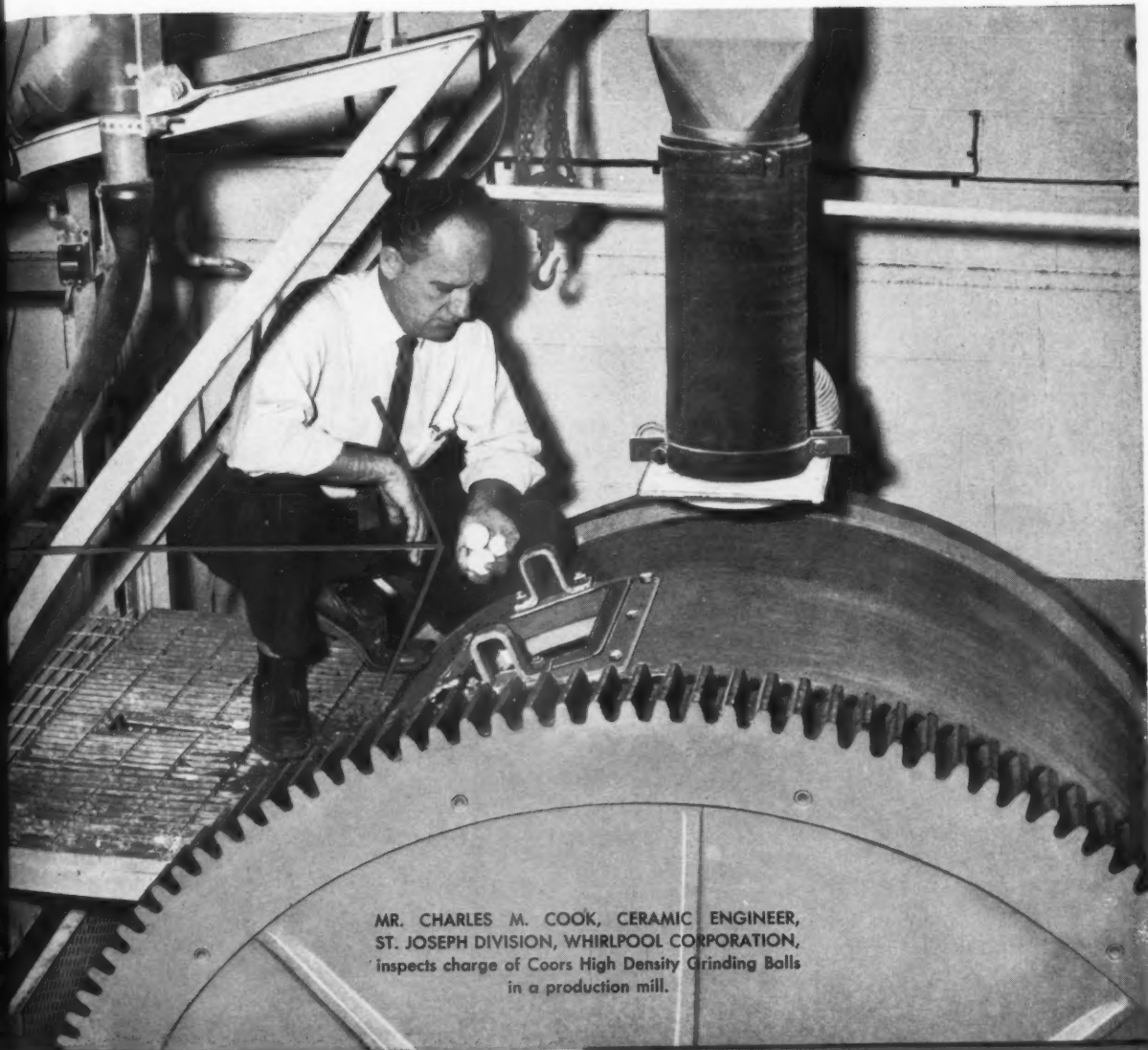
in about 5½ hours. Up to December, 1957, we had ground 750 batches of porcelain slip in these four mills and had added only 500 pounds total of Coors balls to make up for ball wear in all four mills.

"Grinding time has not varied, and neither the balls nor the linings show wear. In addition to these advantages we have never experienced excessive

COORS PORCELAIN COMPANY

GOLDEN, COLORADO

Manufacturers of High Density Grinding Media and Mill Liner Brick



MR. CHARLES M. COOK, CERAMIC ENGINEER,
ST. JOSEPH DIVISION, WHIRLPOOL CORPORATION,
inspects charge of Coors High Density Grinding Balls
in a production mill.

heating of the porcelain enamel slip—
at no time has the temperature exceeded
90° F.” Charles M. Cook, Ceramic Engi-
neer for St. Joseph Division.

Coors High Density Grinding Balls
have been in use at other Whirlpool
plants—since 1951 at Clyde, Ohio; since
1950 at the two Evansville, Indiana
plants, and since 1953 at St. Paul, Minn.

COORS PORCELAIN CO.
600 9th Street
Golden, Colorado



Please send technical information and samples of
Coors Grinding Balls.

Name.....

Title.....

Company.....

Address.....

City.....State.....



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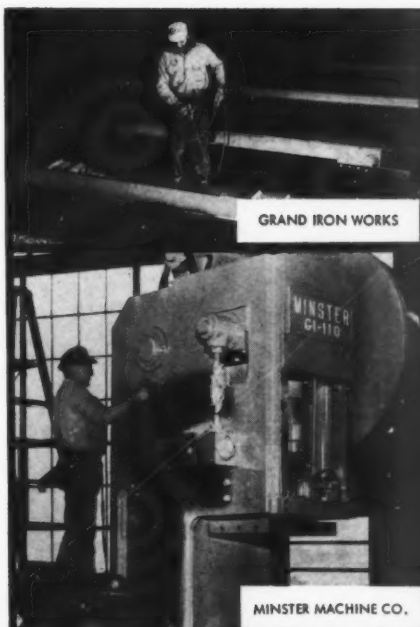
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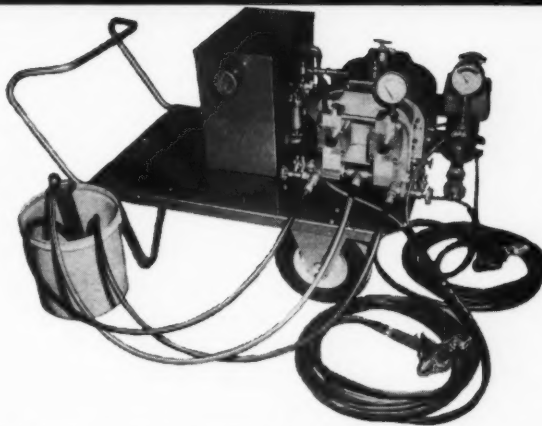


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Spray Coating Equipment

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DREIS & KRUMP MFG. COMPANY	BETHLEHEM STEEL COMPANY
C. H. WHEELER MFG. COMPANY	FOOTE BURT COMPANY
OSBORN MFG. COMPANY	LUCAS MACH. DIV. OF NEW BRITAIN MACH. CO.
LETOURNEAU - WESTINGHOUSE CORP.	THE V & O PRESS COMPANY
DUQUESNE LIGHT COMPANY	ALLIANCE MACHINE COMPANY
LINK - BELT COMPANY	AMERICAN MONORAIL COMPANY
A. O. WILSON STRUCTURAL CO.	MCKAY MACHINE COMPANY
AMERICAN TOOL WORKS	NATIONAL SUPPLY COMPANY
AMERICAN BRIDGE DIV., U. S. STEEL CORP.	NEW ENGLAND IRON WORKS
OSTER MFG. COMPANY	WEST END IRON WORKS
VIERLING STEEL COMPANY	LEHIGH STRUCTURAL STEEL

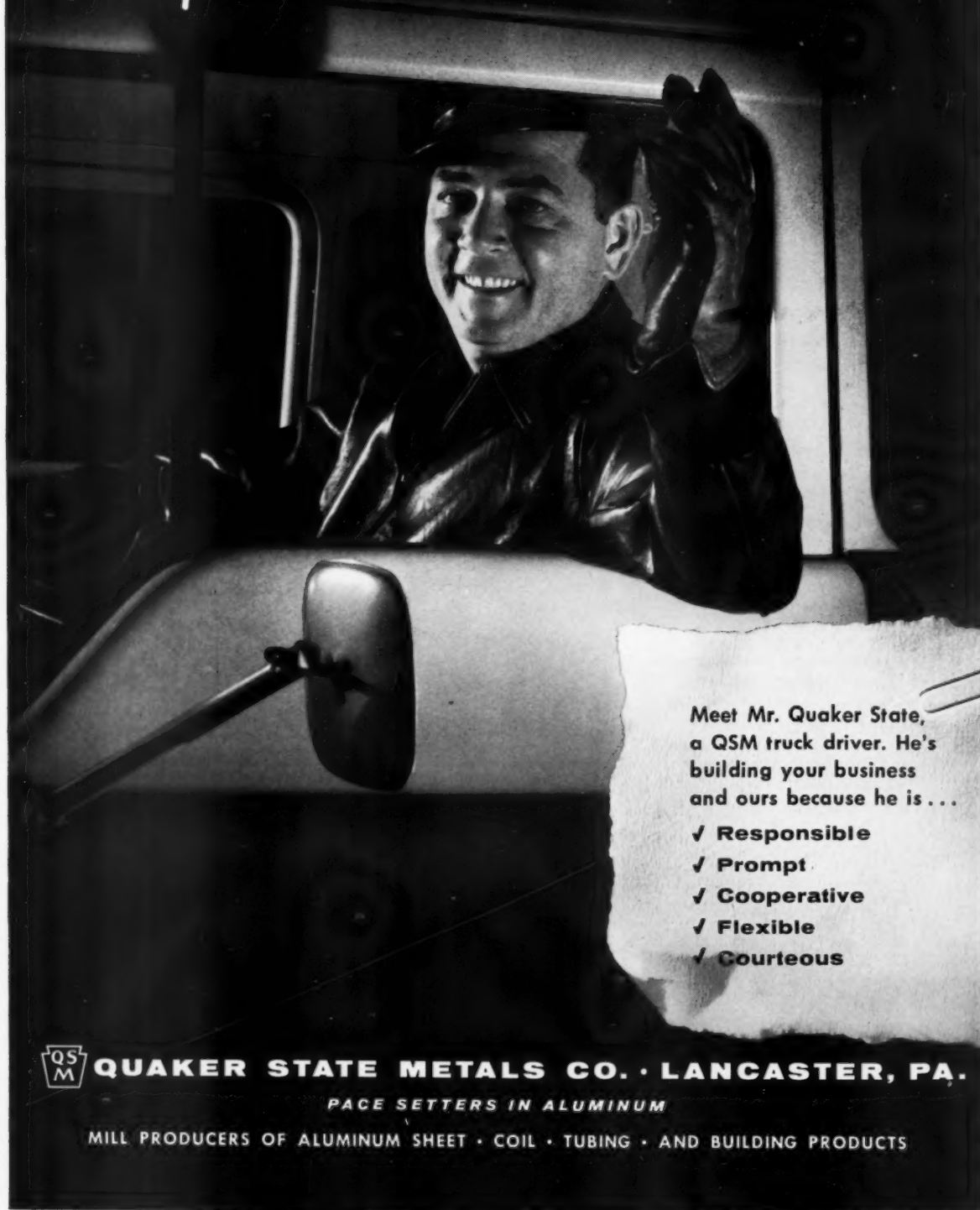
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and ours because he is . . .

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FOAM

INSULATION for APPLIANCES

1 metal-foam-metal for refrigerators

JANUARY, 1958 — MPM

The first issue of MPM for 1958 carried a feature, "The metal-foam-metal sandwich for appliance cabinet construction." With this artist's conception of the m-f-m refrigerator was this comment:

"Should the 'sandwich' cabinet become an important production item, watch these metals and materials battle; Aluminum, carbon steel, stainless — Prefabricated and foamed-in-place insulation — Anodizing, organic and ceramic finishing — Extrusions and rolled trim — and possibly Perforated or expanded metal.



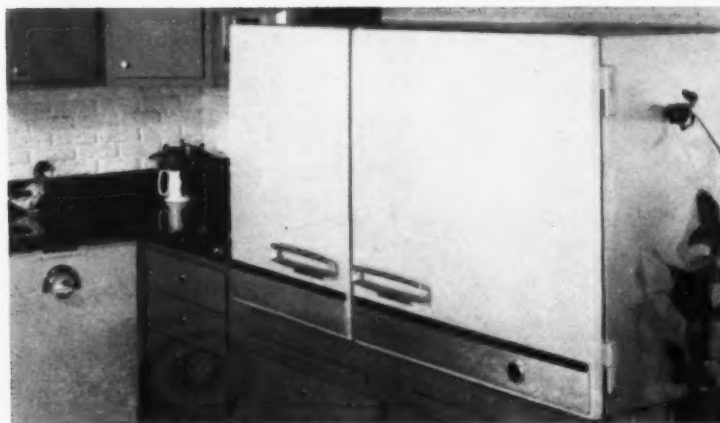
2 metal-foam-plastic for refrigerated coolers

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On the following pages, you will find a detailed description of the application of foamed in place insulation as applied to the Coca-Cola Citation dispenser by the Dole Valve Company, Morton Grove (Chicago) Illinois. A continuous mixing process for foamed in place insulation is described. Here, the sandwich combines a plastic exterior, insulating core, and stainless steel interior.



3 metal-foam-metal for built-in refrigerators



THIS ISSUE — PAGE 30

Westinghouse has announced two refrigerator models using expanded bead insulation "sandwiched" between sheets of aluminum. The method involves the use of a sandwich of the metal sheets bonded to expanded polystyrene bead insulation. Both built-in and free-standing refrigerators are being built.

**continuous mixing process
for foamed in place insulation
may have far reaching effects
for refrigerators and freezers**

EXCLUSIVE MPM PHOTOS

WHEN POLYURETHANE FOAMS in the form of cushion material and insulation came on the market about four years ago, the potentialities of the product were quickly realized by many manufacturers. Today, polyurethane foamed materials are used for seat cushions,



PRODUCT PHOTO COURTESY THE COCA-COLA CO.

A production process for "foamed in place" insulated cabinets

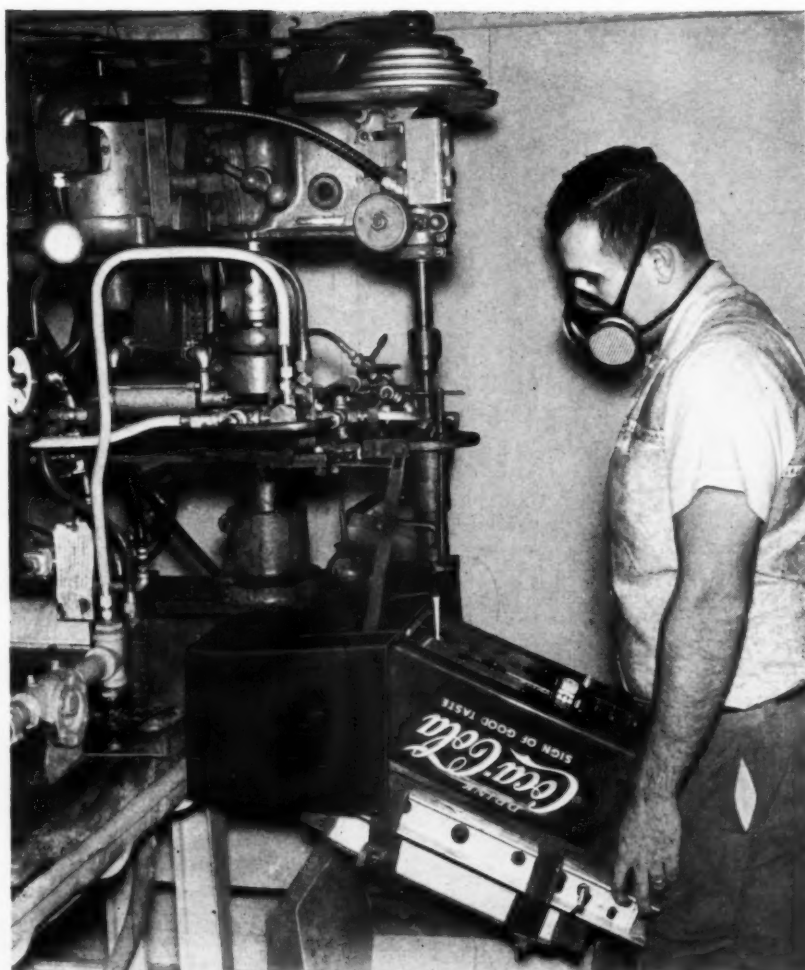
AN MPM STAFF FEATURE

padded automobile dashboards, refrigerator car insulation, and overseas shipping crates, to name only a few. Polyurethane foams can be made rigid or as pliable as rubber merely by sending the foam through a pair of rolls that render the rigid foam as pliable as required.

It can easily be seen that such foams could revolutionize the appliance cabinet field. They could prove to be a boon to the refrigerator industry beyond the obvious advantage of reducing the labor required in putting insulation around a cabinet. These further advantages would be: (1) providing structural rigidity, thereby reducing the strength requirements of the cabinet itself; and (2) improving insulation value over other commonly-used material. (This results in smaller cabinets with the same interior space or more interior space in the same size cabinet.)

The first commercial product utilizing foamed in place insulation by a continuous process is the new Citation model fountain dispenser for The Coca-Cola Co., manufactured by The Dole Valve

Pouring the foam mixture into the dispenser cabinet. To the lower left is the proportioning pump for the resin. The light colored pipe carries the resin. Just to the right of the end of resin pipe can be seen the darker colored catalyst pipe.



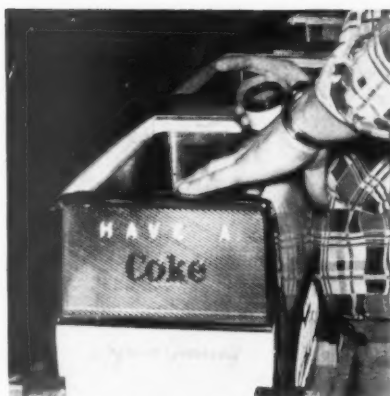
Co., Morton Grove, Ill. The use of foamed in place insulation was suggested by the engineering department of The Coca-Cola Co., Atlanta, Ga., as a means of meeting the exacting requirements of the Citation design. Most of the development of the process and the necessary equipment was by Dole engineers. Help was provided by the plastic supplier as to the proportions of resin and catalysts required to make the kind of foam needed for the dispenser.

The Citation dispenser introduced in July, 1958 is the latest in a series of dispensers for Coca-Cola which Dole has been manufacturing since 1933.

The basic problem in making foams is in mixing the resin and the catalyst continuously in exact proportions just before pouring into the space to be filled. To mix the two materials in separate batches would be too laborious and time consuming for a production line. Yet the resin and the catalyst must be mixed just prior to pouring into place, otherwise the mixture proceeds to foam up almost immediately.

The equipment for mixing the two materials consists of two reservoirs into which the virgin components are pumped from the 50-gallon drums used to store the materials, and a mixer that allows a continuous flow of material. From the tanks, the fluids are allowed to flow by gravity through proportioning pumps.

Before starting each foam mixing operation, a weight check of each material is taken, and adjustments made, if needed, to conform to the ratio of 68-32 per cent of resin and catalyst, respectively. The adjustment is made by changing the speed of each material's proportioning feed pump. Each pump is driven by a variable-speed pulley.



(Left) — To prevent attack of the foam mixture on the inner lining of the dispensers, petroleum jelly is spread around the upper inch of the lining. (Right) — Setting the top wooden jig in place to keep the foam in place around the top of the dispenser.



Both of these pumps are driven by a single electric motor, which powers separate, adjustable-speed v-belt drives. The pumps are regulated to deliver 68 per cent by weight of the resin and 32 per cent of the catalyst. The resin used is toluene di-isocyanate.

Heat control is important

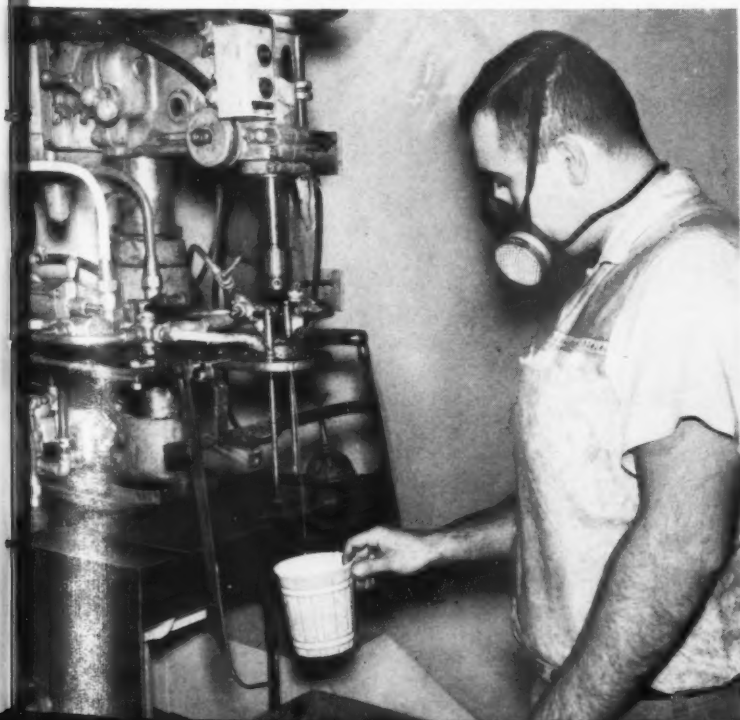
The resin is heated to a temperature of 110° F. to maintain it at optimum consistency for mixing and reacting with the catalyst, which is at "room temperature." Heating is accomplished by utilizing a reservoir equipped with elements very similar to the heaters used in the organic paint finishing field. The pipe leading down from the resin reservoir to the proportioning pump is wrapped with heating element wire to help maintain the temperature of the resin at the proper level right up to the mixing head.

Each of the two fluids is pumped up to air-cylinder-operated valves which the operator sets into action by means of a foot pedal. A timer, also set into action by the foot pedal, automatically keeps the valves open for exactly 30 seconds to allow the right amount of "mix" to feed into each dispenser.

When the material is not being mixed, each of the fluids is constantly being re-circulated back through the reservoir.

Before the machine is started in the morning or afternoon, the operator checks the weight of each fluid separately to see that the ratio by weight of 68 to 32 per cent is being maintained. This is done before the mixing head is

Assembling the mixing head and steel shroud that protects the operator from the corrosive materials. After each shift, the mixing head and shroud are placed in a powerful solvent to remove the foam mixture.



attached. One of the fluids is shut off by a manual valve, and the operator presses the foot pedal to set the timer and the air-cylinder-operated valve to allow the other fluid to flow into a weighed container for the check. The same procedure is followed for the other fluid before the mixing head is set in place.

After each morning and afternoon run, the mixing head and attachments are removed and placed in a powerful solvent to keep the highly-corrosive materials from attacking the metal when the machine is not being operated. The mixing attachment consists of a worm gear-like head that allows the two fluids to mix as they flow down from the two feed nozzles. A shroud of steel pipe is mounted to cover the mixing head and protect the operator from the corrosive and toxic material.

Drill press provides motive power

The motive power for the mixer is provided by a drill press that was adapted for the task. The timers, ammeter for the resistance heaters, and the reservoirs are mounted on a steel table about 6 feet by 3 feet in size.

The plastic dispensers are lined with stainless steel. These liners are spaced about two inches from the outside wall. Before the dispensers are ready to be filled with the foam material, each is mounted into a wooden jig to keep the plastic from deforming the side and end walls of the dispenser. The top of the dispenser is held shut with a heavy wooden cover to hold the foam in its proper place.

Two men run the foam operation at Dole Valve. The first man operates the machine and pours the foam mixture into the dispensers, while the second man "caps" the dispensers after the foam is poured in. The second man brings the dispensers over to the machine and carries the filled dispensers over to a rack where they are kept until the foam sets. The dispensers are removed from the jigs in approximately 6-10 minutes and sent to final assembly. The foam becomes fully hardened in 18-24 hours.

According to The Coca-Cola Company engineers, the heat leak factor was improved over 30 per cent compared with former materials used. Probably even more important than the increase in insulation value was the remarkable improvement in structural rigidity that the foam provides for the exterior walls of the cabinet. This latter advantage will be obvious to the appliance industry and the designers and engineers of appliances.



The equipment setup for foam operation. At the left are the reservoirs for the two materials. The reservoir in the foreground is heated to 110° F. and is used for the resin. Just to the right of the reservoir are the thermostat control for the heater, the ammeter for the motor that drives the two proportioning pumps, and the two timers. Below the panel board are the variable speed pulleys that drive the proportioning pumps. A dispenser ready for the foam mixture is shown in the foreground.

The final step — putting the steel cap in the hole to keep the foaming polyurethane plastic in the dispenser. The actual foaming takes place in about five minutes but the dispenser cabinets are kept in jigs of the type shown here for at least 18 hours to allow the foam to harden completely.



Experience—the extra alloy in Allegheny Stainless



key words in solving production puzzles:

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If one of your toughest production puzzles is getting top quality stainless steel *when* you need it, check in now with the Allegheny-Ryerson combination.

Allegheny Ludlum is the leading producer of stainless steels in all forms. And Ryerson, long recognized as the largest and best steel service center, carries Allegheny Stainless. This unbeatable team brings you the best quality stainless quick, when you need it.

Ryerson now stocks 2,351 shapes, sizes, finishes and alloys of Allegheny Stainless . . . the most complete line

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WSW 7124

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EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT





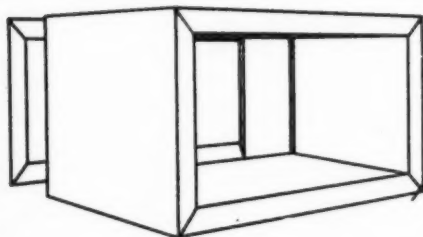
Fig. 1—Mitering edges of panel on a standard double-end tenoner.



Fig. 2—Mitering and notching panel with a high speed radial arm saw.



Fig. 3—(Above) Holes are drilled with a hand-held air drill, using a drill fixture. (Note that templates are hinged for accurate positioning, and counter-balanced for easy raising.) Fig. 4—(Below) Routing is done with a hand-held electric router and template.



Westinghouse

CABINETS for a 13-cubic foot horizontal, built-in refrigerator-freezer, and for a five-cubic foot upright, free-standing refrigerator are now available in metal sheets or skins with a layer of expanded polystyrene bead insulation between them. The aluminum skins are bonded to the polystyrene insulation with an odor-free, rubber-based adhesive. The laminated panel so produced has reportedly more than adequate structural strength and excellent insulating qualities. In addition, it frees the designer from limitations imposed by conventional materials and production methods as the tooling costs for cabinets made of sandwich panels are but a fraction of what they are for conventional materials. Design obsolescence therefore becomes more nearly a practical reality, according to F. R. Marshall, project engineer, Electric Appliance Div., Westinghouse, Columbus, Ohio.

State of art

The state of the art for producing refrigerator cabinets from sandwich panels, or for producing the panels, is not yet far enough advanced to give it a competitive advantage over conventional production methods using conventional materials. But it is far enough advanced to give answers to some basic problems relating to the design and production of refrigerator cabinets from sandwich panels.

1. The relatively-simple production methods involved mean that tooling costs are but a fraction of that for a conventionally-tooled refrigerator cabinet—about 20 per cent. This makes it possible to design "limited edition" models as short-run production is economically feasible.
2. Sandwich panels are extremely light in weight, saving as much as 150 pounds for a 12-cubic foot upright, free-standing model. Shipping costs per cabinet are, therefore, lower.
3. The strength-to-weight ratio of the sandwich panel is excellent.
4. The overall thickness of the sandwich panel can be less than that for the wall thickness of a conventionally-constructed cabinet, as there are no voids in the sandwich insulation.

5. Moisture absorption in sandwich panels, and the subsequent loss of thermal properties, is greatly reduced as the expanded polystyrene bead insulation is relatively impervious to moisture.

Manufacturing "sandwich" cabinets

The initial step in processing the sandwich panel to be used for the top-side-bottom-side (called wrapper), and for the back, is to miter both longitudinal edges on a double-end tenoner (Figure 1). It is possible to cut fairly-complex shapes into the panel on the tenoner as the circular saws are adjustable, and therefore can be positioned at any desired angle.

The next step in processing the wrapper panel is to make a crosswise miter with a radial arm saw at the points at which it will be bent to form the top-side-bottom-side of the cabinet. Each end of the back panel is mitered in a similar fashion, (Figure 2).

Use builds refrigerators of metal-foam-metal



Holes needed inside and outside for mounting trim and accessories are drilled with a hand-held air drill. Hole location and size are determined by a hinged, counterbalanced jig (Figure 3). Channels needed inside for refrigerant tubes and wiring are cut with a hand-held, electric router and hinged, counterbalanced template (Figure 4).

When all mitering, drilling, and routing operations are completed, the wrapper panel is folded at crosswise miters on bending fixtures to form top-side-bottom-side of cabinet (Figure 5). This portion of the cabinet, along with the back partition members, is placed in a jig and polyurethane foam applied to mitered joints by pouring from mixing head of pumping unit (Figure 6).

Extruded plastic corner moulding is used to cover all corner joints inside the cabinet. Final assembly begins with the attachment of extruded aluminum frame

pieces to the front face of the cabinet (Figure 7).

All remaining assembly operations are quite similar to those performed for a conventional refrigerator, with the exception that the insulation and food compartment are integral parts of the cabinet. After the compressor, cabinet accessories, and doors are installed, the strippable coating is removed and the cabinet given a final inspection (Figure 8). The refrigerator is then packed for shipment.

Some observations

Constructing refrigerator cabinets from sandwich panels requires fabrication methods that are relatively simple and straight forward if direct labor is to be kept minimal. While the absence of rolled edges, embosses, and welded members makes possible the extremely-low tooling cost, these benefits are offset by the need to "add on" such parts as roll formed sections and aluminum extrusions to give the cabinet a finished look, and to furnish mountings for hinges, and compressor, and condenser.

Dimensional tolerances are dependent upon precise jigs and fixtures and the cut of the tenoner and radial saws. Squareness of mitered joints and routed notches determines exactness of fit where mated parts must be brought together. Sandwich panel thickness is especially critical for the wrapper that is folded to form the top-side-bottom-side of the cabinet, for it is the exterior dimensions that are held to precise tolerances, not interior. Therefore, any variation in panel thickness reflects a corresponding variation in interior compartment dimensions. A variation in panel thickness of $\frac{1}{8}$ inch will produce a variation in interior compartment dimensions of $\frac{1}{4}$ inch. Such thickness variation would make mating of parts most difficult, and add considerably to the assembly cost. However, when panel thickness is held to acceptable tolerance, and when design and manufacture of jigs and fixtures has been precise, refrigerator cabinets can be made within dimensional tolerances established for conventionally-produced steel cabinets.



Fig. 5 — Refrigerator top-side-bottom-side is formed by bending panel 90 degrees at each miter in bending fixture.

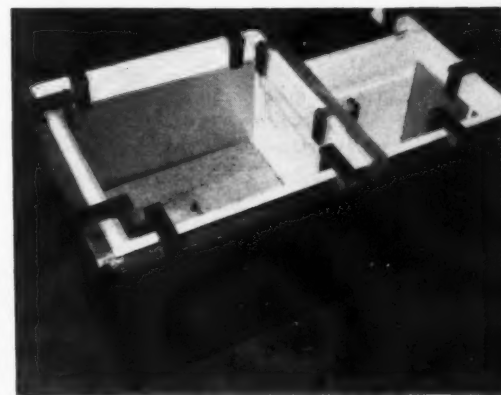


Fig. 6 — Formed refrigerator cabinet is placed in holding fixture and polyurethane foam is applied to joints.

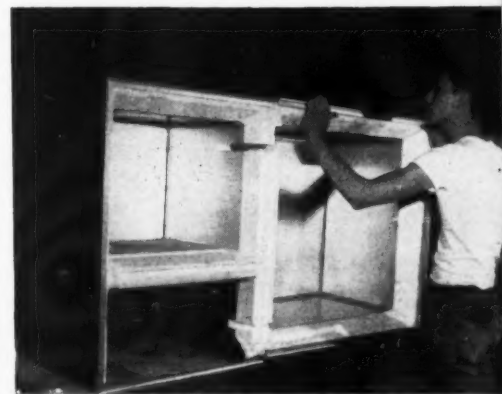


Fig. 7 — (Above) Final assembly begins by attaching extruded aluminum frame pieces to face of cabinet. Fig. 8 — (Below) Refrigerator as it appears assembled, including doors.



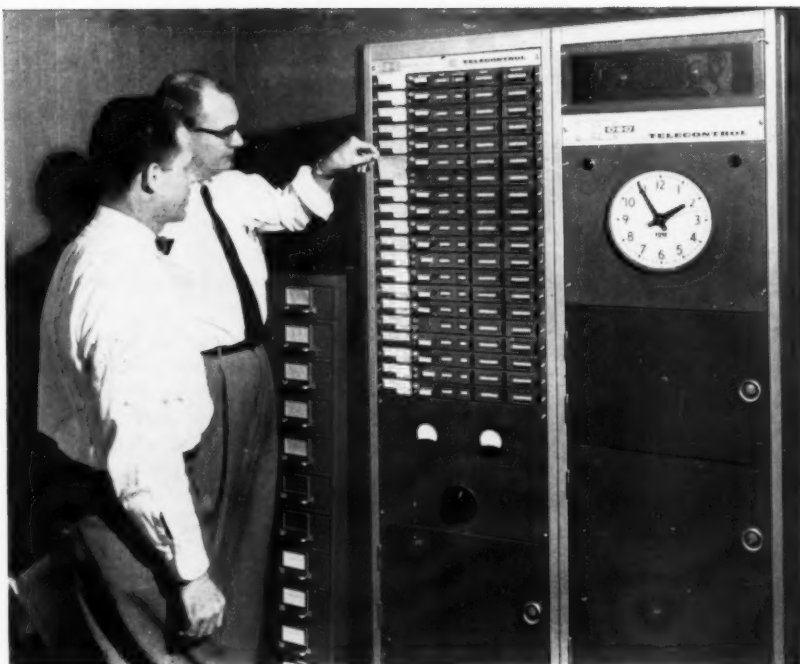
THE DUAL PROBLEM of tight scheduling and precise production control, a perennial headache in short run machining operations, is now well on its way to solution in the Milwaukee plant of the John Oster Mfg. Co., makers of small electrical appliances, tools, and motors.

Credit is given to a recent installation of production control equipment, which monitors and controls parts being produced.

An electromechanical link

The equipment is an electromechanical link between the machines in the shop and production supervisors in a central control room. It provides continuous collection and transmission of manufacturing data and permits instant communication between the production supervisors and the machine operators.

The John Oster Mfg. Co., a moderately-sized organization that has been competing against the giants of the small home appliances field for 33 years, manufactures three major lines in its 300,000-sq. ft. Milwaukee plant that employs approximately 1,000 people. The lines include: (1) small electric home appliances (including Osterizers,



Roger W. Wallace, Oster Milwaukee plant manager, discusses operation of control equipment with Richard G. Vincens, production control manager. When trouble or production problems occur at any station out in the shop, and the operator has notified this control room of the unusual condition, the supervisor dispatches a foreman to the machine over a public address system, giving the number of the machine in difficulty.

Central system for production control in a small-appliance plant

**a centralized control monitors the production of
each piece of machinery and each sub-assembly line**

PHOTOS COURTESY CONTROL SYSTEMS CO.

massaging devices, knife sharpeners, meat grinders, can openers, ice crushers, portable mixers, and hair driers; (2) barber and beauty shop equipment; and (3) portable electric tools for home hobbyists.

These products are fabricated on 18 separate production assembly lines supplied with parts from one machine shop operating over 500 assorted machine tools.

This is a highly-effective and extremely-flexible manufacturing facility, if properly controlled, but it does impose heavy responsibilities on production control and scheduling. The nature of the components going into the various products is such that they are in

constant competition for the services of the various machine shop tools.

Any disturbance of the balance between machine shop operations and assembly line needs results in shut down lines, idle machines, and overtime premiums to get work back on orderly schedules.

Punch press department for pilot installation

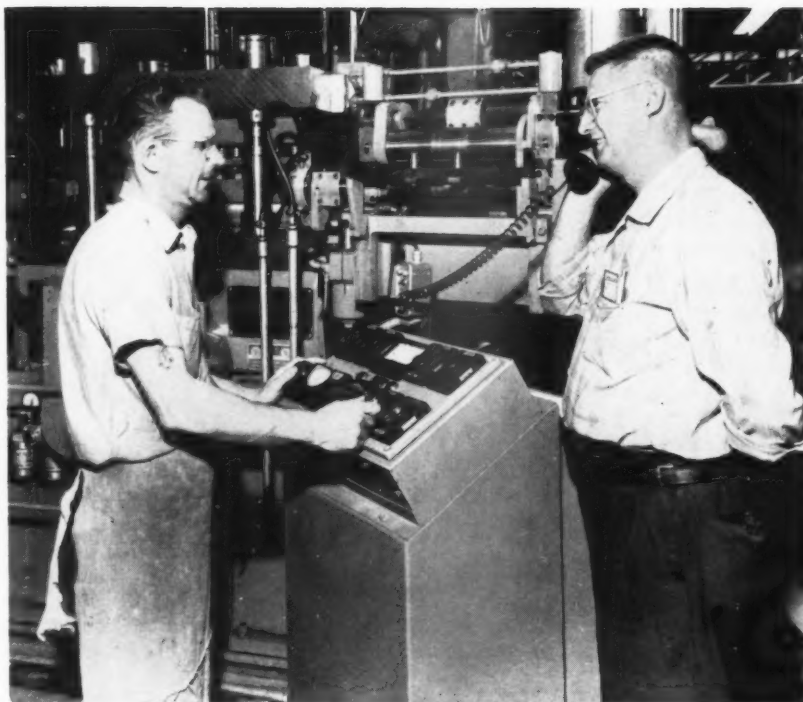
According to Richard G. Vincens, manager, production control at John Oster, the company first installed the control equipment for production monitoring in the punch press department which had long been a trouble spot.

Proved out there by eliminating over-

runs, delivering exact piece counts immediately, and increasing machine utilization sharply, the system is being extended to the gear cutting department currently, and by the end of 1959 will cover the entire machine shop.

John Oster's initial application of the control system in the punch press department was in the nature of a pilot installation to test its effectiveness in operation under actual shop conditions. Twenty stations were included in the original layout.

The control center was located in the production control office. This placed punch press operations directly under the surveillance of the production control manager, and gave the chief



Henry Langlitz, punch press department foreman, advises control dispatcher that machine 705 is about to complete die tryout as Louis Meyer, machine operator, checks machine controls.

dispatcher, production planning supervisor, and individual planners immediate access to manufacturing information as it became available.

How system operates

Each production station in the plant carries a small control box. This box links its operator to the control equipment in the central control room. Sensors on each machine automatically count the production of each part and signal it to the monitor and control equipment.

Each production station or machine has its own separate display on the control cabinet, and twenty of these displays mount in one control cabinet. On these display panels, electromechanical counters register the electric signal received from the machine sensors in the shop and record the number of parts produced within the shift.

Another indicator, called a balance counter, is preset before a production run is started to the total number of parts needed — when this total is reached, the production supervisor in the control room is informed by a flashing green light and an audible “beep.”

Another basic function is that of automatic time-keeping. While work on

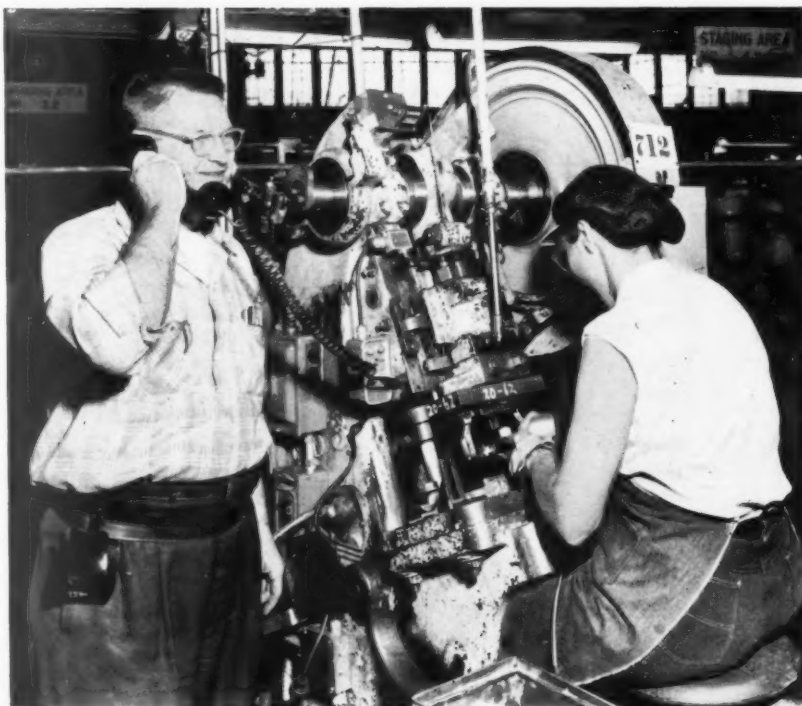
any machine proceeds normally, the operator remains on a higher-rate productive basis. The number of pieces produced is registered on each machine's display unit on the control cabinet in the control room. Should production stop for any reason (machine breakdown, material or parts shortage, or

other trouble), the operator flips an alarm switch on his machine's control box, and a red light flashes both at his own station and in the control room.

In the control room, seeing the warning light accompanied by an audible “beep,” the dispatcher notifies the foreman of trouble over the public address system, giving the respective machine number. This method of communication between machine operators and control room staff permits the foremen to remain on the floor near their own production areas.

All foremen carry special telephone handsets at all times, and each control box has a jack for intercommunication to the control room. Once the foreman arrives at a particular machine and ascertains the problem, he can confer with the dispatcher in full detail. If the difficulty is a minor one, such as the need for more parts or material by the operator, the foreman can ask for it from the control room. There, the dispatcher again utilizes the public address system to direct the stock man to the machine requiring material. This direct means of communication results in significant savings in time. In fact, if

to Page 61 →



Here, Langlitz advises control dispatcher that machine 712, operated by Arbrelia Mehcz, requires additional material.

CHICAGO MILL AND LUMBER COMPANY

CONTAINER DIVISION

Factories
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NEW YORK 17, N.Y.
PHONE MURRAY HILL 2-3887
DESIGNING AND TESTING DEPT.
2880 CLYBURN AVE.
CHICAGO 14, ILL.

CHICAGO 3
December 2, 1958

Mr. Dana Chase
Dana Chase Publications
Elmhurst, Illinois

Dear Mr. Chase:

As we prepare to start our 78th year as a manufacturer of shipping containers, and our 16th year as a monthly advertiser in your publication, I think some comment may be in order regarding the business relationship which we have enjoyed.

From an \$8,000 company, Chicago Mill has grown to a multi-million dollar corporation with plants in five states, employing 1,300 workers and producing every type of shipping container now used in volume.

For the past twenty-five years, the field of home appliances and other volume-produced fabricated metal products has represented our largest single market. This is, of course, the reason for our use of METAL PRODUCTS MANUFACTURING to carry our company and product story. As you well know, our first ad appeared in your first issue (January, 1944), and we have carried a full page advertisement in each issue for the succeeding fifteen years.

As we start our sixteenth year of advertising, MPM continues to be the "backbone" of our advertising program. We want to thank your organization for the close cooperation you have given Chicago Mill and our advertising agency.

A comment is also in order for the National Safe Transit program which you initiated and have continued to foster editorially. The NST program has become a very important help to the shippers of appliances and similar products.

Keep up the good work editorially, and you will find Chicago Mill's message in each issue to reach our customers and prospects in our most important market.

Yours very truly,

CHICAGO MILL AND LUMBER COMPANY

A. L. Whiton
A. L. Whiton
Vice President - Sales

SERVING THE *Appliance* AND

over 15 years of CONTINUOUS ADVERTISING

The first twelve page contract for Chicago Mill and Lumber Company advertising in MPM was signed in late 1943, before the first issue went to press. This charter advertiser has appeared in each succeeding monthly issue for over fifteen years.

Chicago Mill sales executives had determined that the producers of appliances and fabricated metal products represented the largest single market for the output of their container division. MPM was the first magazine designed exclusively to serve this multi-billion dollar market. The result was a mutually profitable business association which is now in its sixteenth year.

Mr. Whiton states in his letter, "MPM continues to be the 'backbone' of our advertising program"—"Keep up the good work editorially, and you will find Chicago Mill's message in each issue to reach our customers and prospects in our most important market."

MPM provides an editorial service to its readers that is unmatched in quantity, scope and quality by any one magazine serving the field. By focusing its editorial attention on appliance and fabricated

metal products manufacturing, it provides a concentrated editorial service that encourages cover to cover reading.

METAL PRODUCTS MANUFACTURING provides:

- 1) Sixty per cent more editorial material than any immediate competitor.
- 2) Over 13,000 circulation, 100 per cent verified under BPA audit regulations.
- 3) Coverage of over twice the number of plants offered by other appliance magazines, and
- 4) Ample evidence of reader response, both to editorial content and advertising.

The charter advertisers, like Chicago Mill, help support our claim that if you have the right material, equipment, component or service for the appliance and fabricated metal products manufacturing field ... and present it properly in MPM ... the men who engineer and build the metal products, plus those who purchase for and manage the producing plants, will respond.

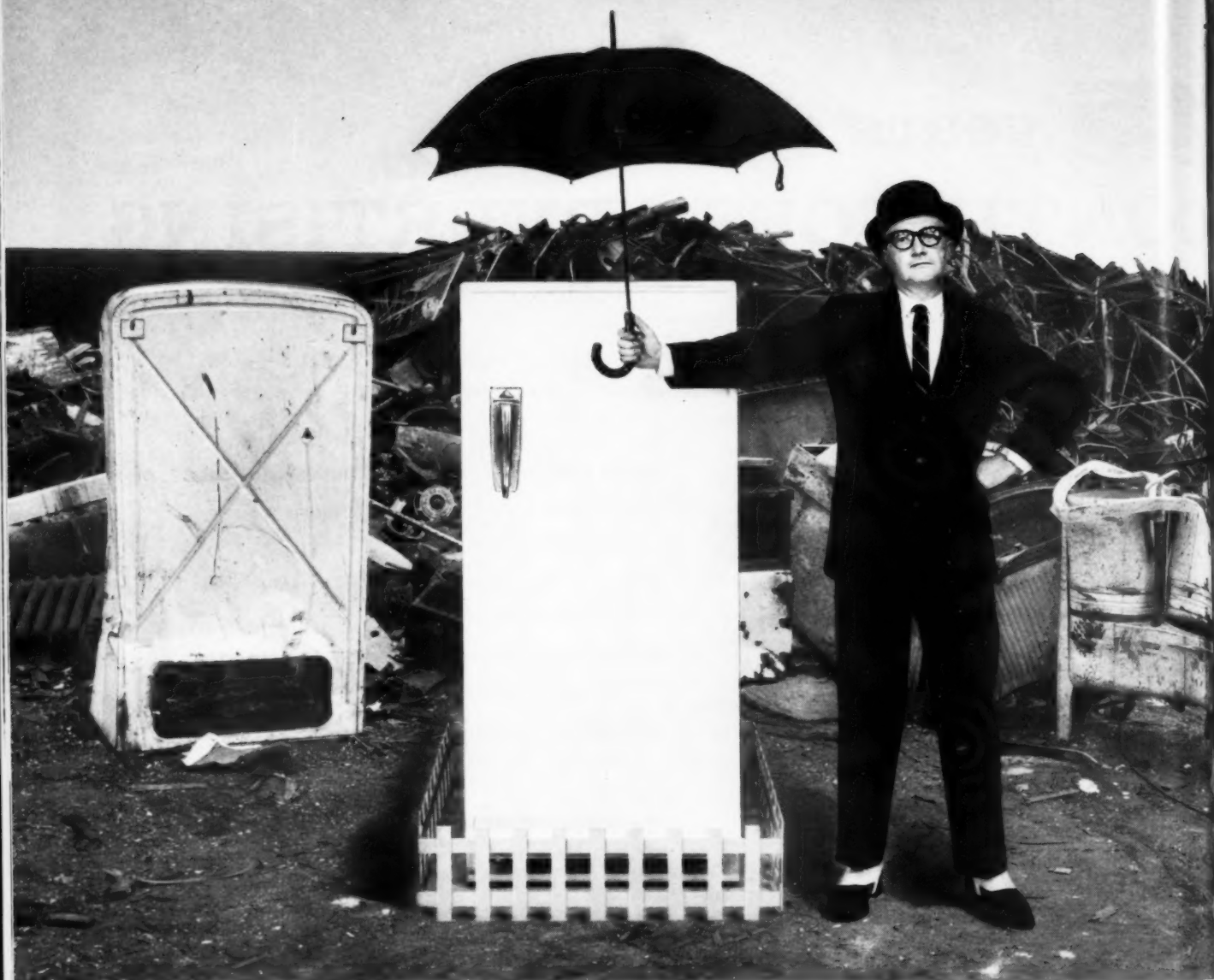
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important, Glidden Technical Service is yours for the asking, and includes analyses of your finishing problems by experienced, trained technicians.

You should have both—Glidden Finishes and Glidden Technical Service—for *real umbrella protection*, whatever your product, process or problem.

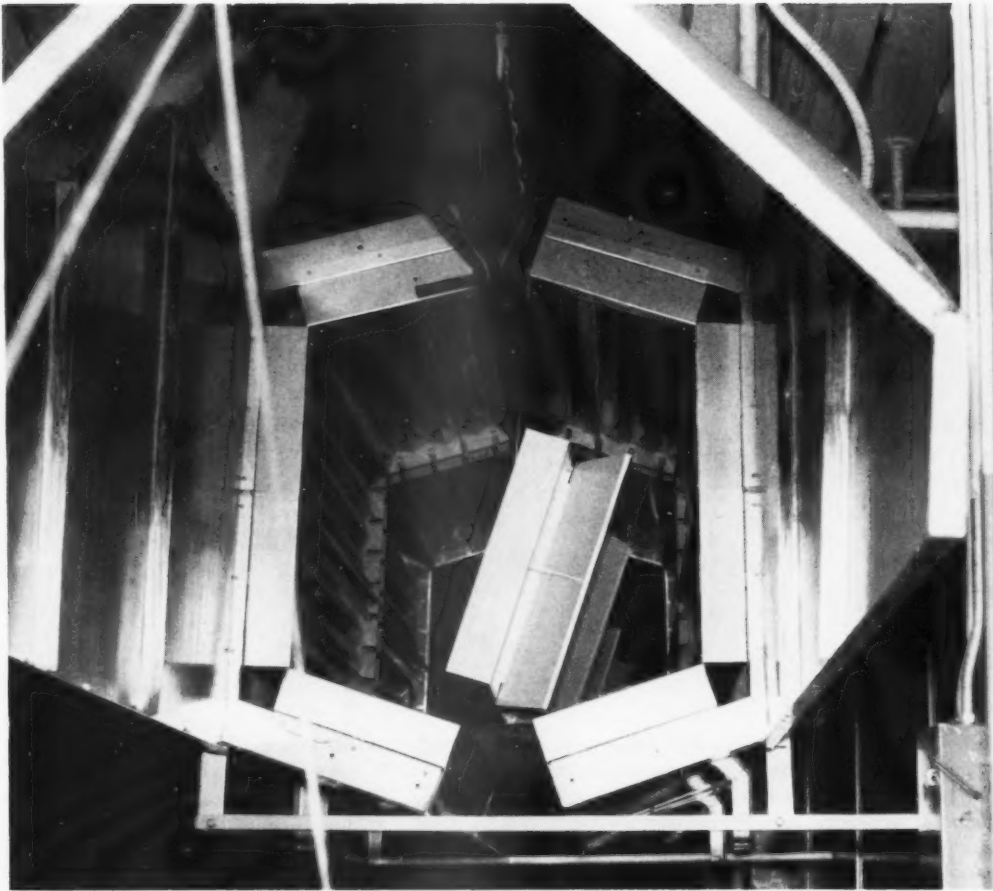


FINISHES FOR EVERY PRODUCT

The Glidden Company
INDUSTRIAL PAINT DIVISION
900 Union Commerce Building • Cleveland 14, Ohio



"THE GLIDDEN UMBRELLA"
of protection combines comprehensive
technical service and custom-formulation
of product finishes for all industry.



The entrance end of the A-lock-type oven which incorporates a V-type roof for maximum efficiency. Both sections of the quartz tube infra-red oven can be seen.

EXCLUSIVE MPM PHOTOS

New equipment and handling system for paint finishing

quartz infra-red oven combined with new conveyor system for high production spray painting of metal cabinets is accomplished in minimum floor space

AN MPM STAFF FEATURE

A GREAT MANY MANUFACTURERS have been faced with the problem of gaining high production spray painting of prefabricated and fabricated units in a minimum of floor area.

A highly efficient, compact finishing system, combining the latest in paint baking equipment and conveyors, is making the task of turning out high quality metal cabinets a far easier one for Gold Seal Manufacturing Company. This Chicago firm makes medicine cabi-

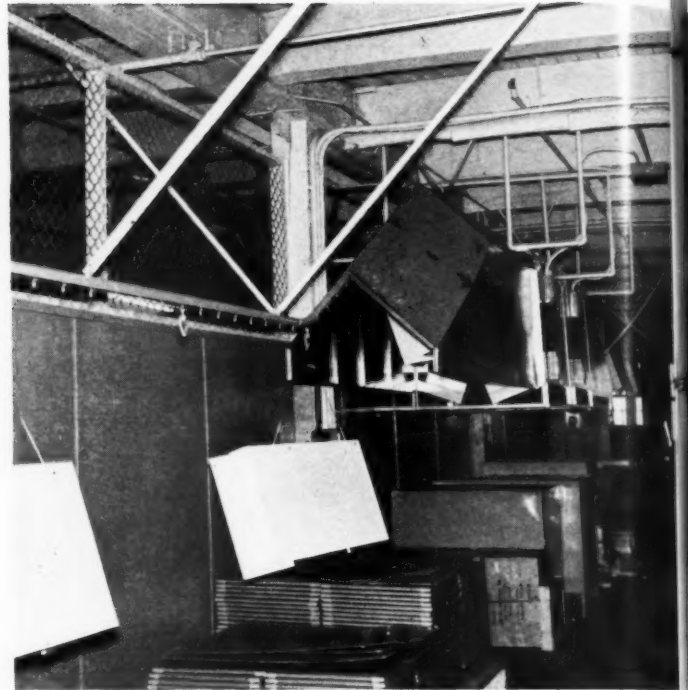
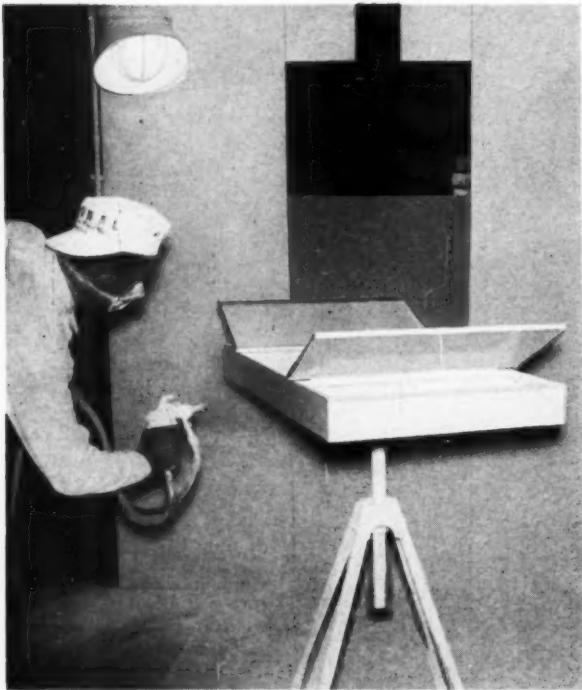
nets, bathroom cabinets, kitchen cabinets, and cabinets for hospitals, laboratories and schools. The cabinets range in size from 2 to 4 feet in width with a constant 3-foot height and 6-inch depth.

The finish used is a white enamel and is classified as a pale, non-oxidizing type alkyd, fortified with melamine and urea for heat and light stability. Its chemical conversion is set for a 325° F. bake to make it detergent resistant.

Handsome trim on the cabinets is of

polished stainless steel or chromium plated mouldings. Each cabinet is further set off by hinged or sliding door mirrors and attractively designed lights.

Gold Seal engineers, in joint planning with a conveyor manufacturer, designed and installed a complete new finishing system. Main components of this system are a water-wash spray booth, a quartz infra-red oven, and a 225-foot long U-type overhead conveyor. Each of these system components were



specified by Gold Seal operators to include several of their own innovations. The conveyor system, for instance, was designed with a minimum of turns or changes in elevation and had to be as light and flexible as possible.

Unique A-lock

An A-lock was added to each end of the two-section baking oven at the recommendation of the supplier. One of the company operators added an idea of his own when he specified that the top of the oven be fabricated in an inverted-V design with the conveyor at the apex of the V to minimize the loss of heat and volatiles.

Swivel-type hangers carry each cabinet by two wire hooks. Hangers can be rotated and locked in any of four different positions, enabling various sized cabinet units to be positioned for maximum working efficiency. Endless combinations of shapes and sizes of these units may be handled by the versatile system.

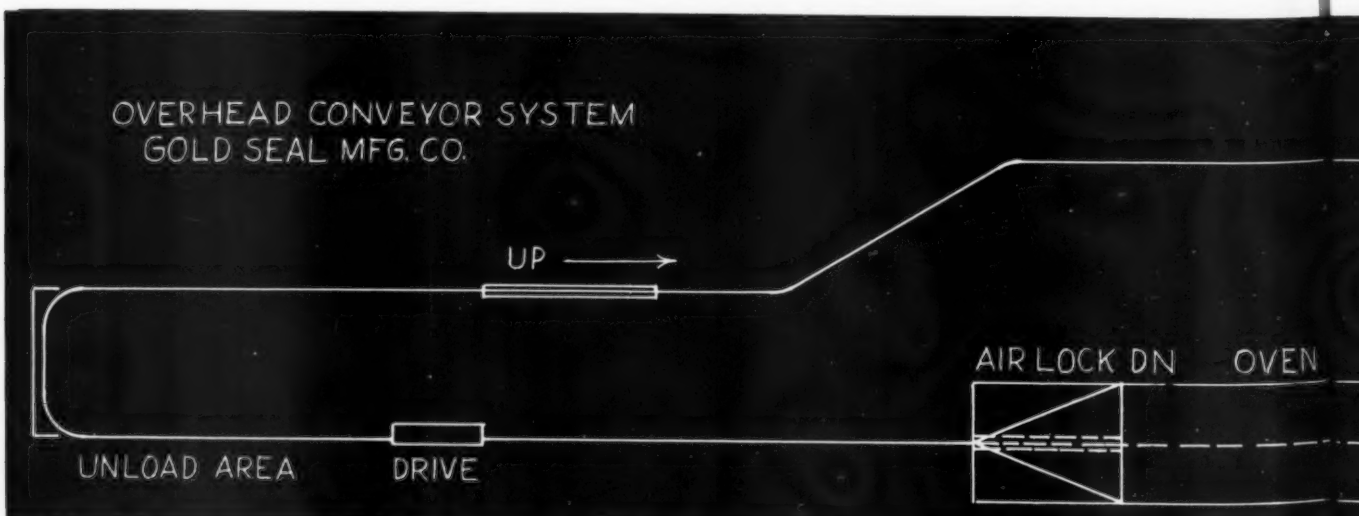
Space between unit hangers can be in any multiple of six inches, with each hanger handling up to 30 pounds. Variable speed control is another feature of this conveyor system. In normal operations, Gold Seal engineers have determined that a speed of approximately two feet per minute is best for overall spraying and drying, but faster or

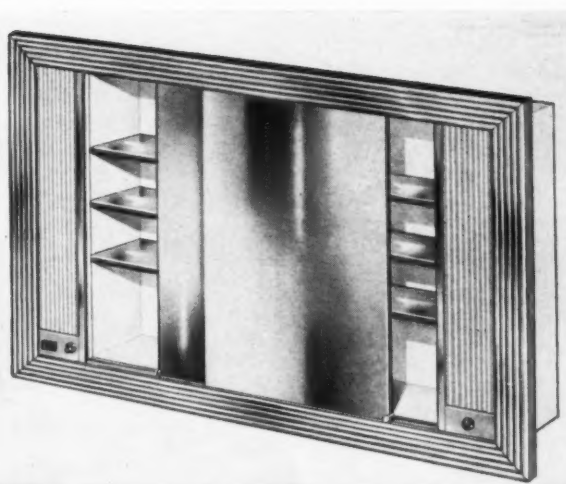
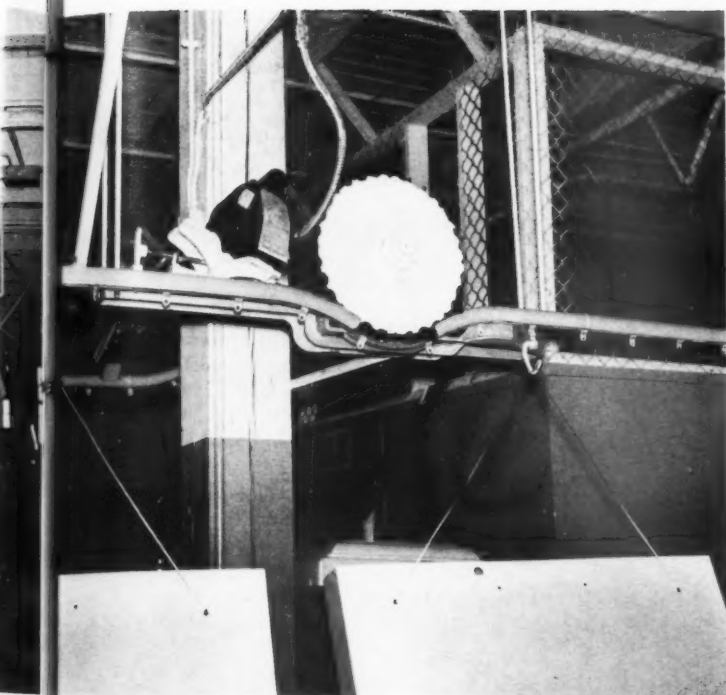
slower speeds are possible when needed.

Some of the cabinets are fitted with doors during fabrication to simplify assembly. The doors in this case are held open by means of specially designed hooks that are not removed until the finish has cooled after baking.

Since the fabrication of the cabinets does not consist of any draws requiring special compounds, metal preparation is simply a tack-rag wiping operation.

Some of the larger cabinets are painted on stands made especially for the purpose, while the majority of the cabinets are painted on the conveyor. Hand spray is considered by the company to be the best method of applying the





(Above) — Metal cabinet manufactured by the Gold Seal Mfg. Co. (Left in sequence) — (1) The ten-foot water spray booth is one of the components of the new finishing system. Here, the sprayer is painting one of the double door medicine cabinets. Note method of holding the door open by means of special wire hooks. (2) Overall view of oven from exit end. (3) A closeup of one of the drive units for the 225-foot conveyor.

paint, due to the shapes and sizes of the cabinets.

Ceiling mounted quartz tube infra-red oven

After leaving the spray booth, the cabinets move approximately 40 feet before they enter the first A-lock of the oven. This travel provides just the right amount of set-up time for the paint prior to baking.

The total length of the overhead oven is 22 feet, including the A-locks. The natural convection heat produced in the entrance A-lock from the oven conveniently preheats the cabinets before they enter the first section of the oven.

Total time of passage through the entire oven is 11 minutes. Both sections of the oven are identical except that the second section is regulated with an interval timer that is preset according to the size and shape of the part being processed. This control can provide half on, half off heating if needed. The cabinets are heated to the required level in the first section. Variation in product size and shape can be adequately provided for through the application of the heat control in the second section.

Temperature of the baking is controlled to 325° F. Each section of the oven is equipped with four 1000-watt quartz tubes at the bottom and three

500-watt tubes at each side. Sockets for additional lamps are present if higher temperatures are required in the future. Further control of the temperature can be had by regulating the power input to the lamps.

When the cabinets emerge from the second A-lock, they travel for about 40 feet to final assembly. Here the mirrors, lights and trim are installed. The completed cabinets then move along to packaging.

The compact, completely conveyORIZED system has enabled the Gold Seal Company to turn out a large volume of products while using only a relatively small area for the finishing operations.



Good traffic at

AN MPM STAFF REPORT

A YEAR AGO, THE KEYNOTE at the January market was one of optimism for the coming year. A few predicted correctly when they looked to the latter part of the year for gains in appliance sales because that's just what happened. On the basis of substantial gains reported for five of the last six months of 1958 over 1957, (MPM Statistics, Oct., Nov., Dec., Jan., and this issue, page 85), major appliances representatives of the manufacturers felt confident that the upturn would continue into 1959.

More for the customer

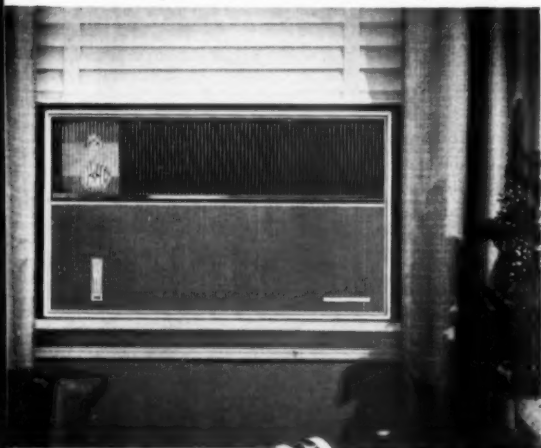
Fred Maytag II asserted that his company expects to increase sales by somewhat more than the 1959 forecast for the home laundry industry of eight per cent. He based this prediction, given at a press conference, on the fact that Maytag was ahead of 1957 in 1958 sales in contrast to an industry decline of five

to Page 78 →



One of the most outstanding of Hotpoint's Custom Trend '59 series is this kitchen appliance wall. In 12 feet of space, Hotpoint has combined two ovens, four surface units and griddle, two dishwashers, a sink, a food waste disposer, a seven-cu. ft. refrigerator, a seven-cu. ft. freezer, three wardrobe-type storage areas above, two full-length storage areas below, and three pull-out counter-tops.

The deluxe "Masterpiece" line of room air conditioners by Kelvinator includes nine models, ranging from one horsepower and more than 10,000 Btu's per hour, to two-and-one-half horsepower and more than 19,000 Btu's per hour with electro-magnetic filter.



Totally-new design marks General Electric's experimental Power Storage refrigerator. Back portion is a 12-cubic foot fresh food compartment which can be raised or lowered at the touch of a button so each shelf comes to convenient height.



fic at market

appliance manufacturers pleased with the turnout at the International Home Furnishings market in Chicago; new features and designs attract buyers



Amana's compact air conditioner series incorporates, on certain 1959 models, the heat pump feature.

Ice cubes, assembly-line fashion for thirsty youngsters, are possible with the new Norge electric refrigerator-freezer. (See MPM, July, 1958, page 20.)



Oven cleaning has been made easy by Frigidaire designers. Milady pulls entire oven out of the range cabinet where she can clean it easily—without stretching or stooping. This development is featured in Frigidaire's new 40-inch electric ranges for 1959.

More Photos Next Page →

Dishes, pots, and pans washed by high-frequency sound waves, inaudible to the human ear, is a principle shown for the first time in the Westinghouse ultrasonic dishwasher. Household current of 60 cycles is stepped up to 20,000 to activate the transducer.





Fourteen complete place settings—plus 30 additional pieces of silverware—are said to fit into the new RCA Whirlpool Imperial undercounter dishwasher, even though the unit is only 24 inches wide.



This oven unit fits directly on a counter top and needs no "building-in." Aimed for the low-cost market, the new unit can be plugged into 115 volt outlets. Marge Christiansen, Philco's Chicago home economist, is shown here.

MPM photo



A gas built-in range is one of a full line of built-in kitchen appliances made by Preway, Robert J. Sanderson, field sales manager, is shown here.



Fred Maytag II, president, The Maytag Co., "We expect to increase sales by a somewhat greater percentage than the eight per cent forecast for the industry as a whole."

MPM photo

Robert E. Brooker, president, The Whirlpool Corp., "The products with the lowest saturation will account for the greatest increase in sales in 1959."



MPM photo



A free-standing refrigerator which is part of Hotpoint's Custom Trend line. Ray Sandin, left, manager of visual design, Hotpoint, and Howard Scaife, marketing manager of refrigeration, are pleased with the operation of the air controls that open and close the doors. Note the drawers for the freezer compartment.

MPM photo

MPM Photo

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TWO MINDS about

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The mind that sees—and understands—your need. The other
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must need only make it available to you before you need it.

Pemco makes have performed in this dual role for nearly
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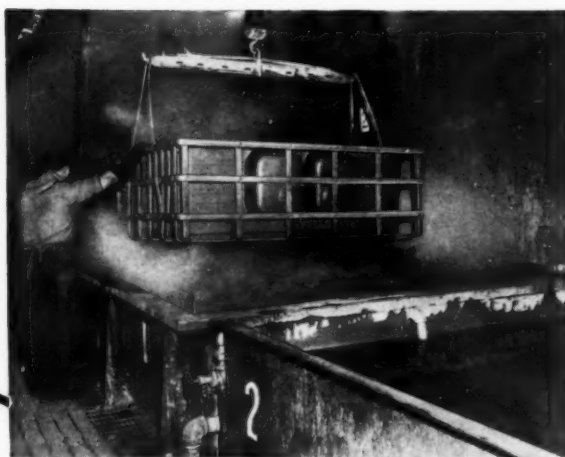
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1-2

**CLEANING
PROCESS for
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**IT'S A HIGH SPEED CLEANING PROCESS
THAT CLEANS SO IT STAYS CLEAN**



In enameling, there's nothing so costly and disheartening as rejects. If you are faced with this difficulty—due to unclean metal parts—Mac Chem 1-2 Enameling-Cleaning Process can be of an infinite help.

While we do not claim that Macco Cleaner and Cleaning Process will entirely eliminate all rejects, we do maintain they will reduce them to minimum.

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Write or phone Macco today and have a Macco engineer make a demonstration in your plant. No obligation, of course.

This 2-Stage Metal Cleaning System is serving some of the country's largest porcelain enameling plants. Can be used with equal effectiveness in both automatic and batch type equipment.

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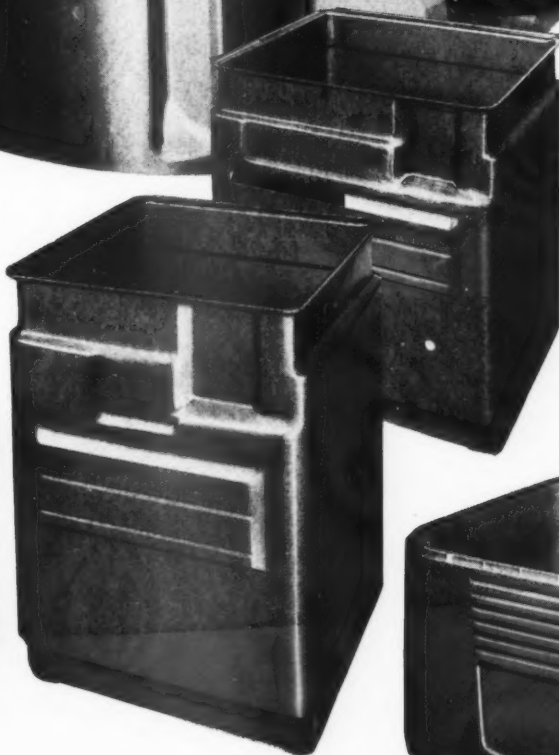
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Are you "fussy" about your facilities?

Wallace Expanders meet the requirements of perfectionists

This unique piece of equipment expands a welded cylinder into almost any shape: square, rectangular, or round, with extreme irregularities in design.

Today's market demands more and more of manufacturers while the profit squeeze makes it tough to modernize and grow. Yet growth is more than additional facilities. It takes efficient, well planned facilities to deliver quality products as specified. Wallace expanders are machines of unsurpassed excellence in every detail. We maintain our own try out equipment to demonstrate how you can beef-up production and still retain quality; how to save money by eliminating many costly operations. As builders of machine tools for 39 years, we can point to a long list of "fussy" but satisfied customers.



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Dishwasher for the space saver market

mobile automatic dishwasher

requires no installation, and

features ever-walking walls of water

AN MPM DESIGN FEATURE

CRIBBEN & SEXTON COMPANY of Chicago has been manufacturing and selling appliances for over 85 years. In addition to their complete line of cooking and heating appliances, the company has, during recent years, been offering automatic dishwashers.

The dishwasher described in this feature is Model 9918, a space-saving model designed to capture a share of

the business in small, modern kitchens of homes and apartments and in the increasingly important kitchen remodeling market. As a built-in, Model 9918 requires only 18 inches of cabinet space. The 34 $\frac{1}{4}$ -inch height allows for standard 1 $\frac{1}{2}$ -inch counter top (either in a continuous counter or as a free-standing installation at right or left of cabinet arrangement) and also allows $\frac{1}{4}$ -inch level adjustment.

A terminal box is provided for simple electric connection, and a threaded automatic water valve provides for quick connection to the hot water supply.

Flexible design embodied with the "square look"

The James-Universal dishwasher has straight line design or the "square look" paralleling the trend in other kitchen appliances.

The front panel is designed for easy removal, so that it can be replaced with either matching custom wood front or choice of colors in steel. Standard "decorator colors" are available without extra cost. Satin chrome and antique copper front panels are available at additional cost.

Automatic controls and components

The unit has a fully automatic timer with a master control which starts the machine and, at the same time, locks the unit in place.

When the control knob is placed in open position for opening the machine, all action stops and the machine cannot be started again until the front is locked in position.

The machine locks in position and the timer starts by turning the control knob clockwise — the only direction that the knob can be turned. The unit is equipped with a motor-driven power pump. This centrifugal pump power drains the wash well.

The wash well is rectangular in design, and is fabricated of mirror finish stainless steel.

Loading and operation

Plastisol coated racks in contrasting colors serve to hold the wash load. The bottom rack is divided near the center with one wide side designed for large flat items such as dinner plates, and a small side for saucers, butter plates, etc. This large bottom rack straddles the water source which is located in the bottom of the "U" shaped wash well.

A silverware basket is designed with several compartments to prevent any nesting which might impede water circulation.

Glasses, cups, tumblers, etc. are placed upside down either on side racks or the upper center rack. The two upper side racks are designed so that the user can flip up one or both of them for loading the bottom rack. The side racks



remain in a vertical position during this loading operation, and then can be returned to their horizontal loading position. All racks are removable.

The manufacturer describes the washing action as a "walking wall of hot water," moving from left to right, front to back and bottom to top.

The washing cycle of approximately 14 minutes includes one 1½-minute pre-rinse cycle, one 5-minute main wash cycle (with detergent automatically added) and two final rinse cycles of 2½-minutes. Fill and drain time are included in the 14 minute allotment.

A cycle of the machine consumes 6 gallons of water, which re-circulates at a rate in excess of 50 gallons per minute.

A removable stainless steel "micro-filter" screen filters out food particles and eliminates the re-circulation or re-depositing of food particles on the dishes.

A removable basket strainer located over the drain opening catches larger food particles. This strainer is a simple, lift out device for ease of cleaning.

The pre-loaded non-sudsy detergent is automatically injected into the main wash cycle following power pump drain of the second pre-rinse.

Pull-out design aids installation, loading and servicing

The dishwasher chassis is mounted with heavy duty rollers and slides on a metal track at each side of the metal

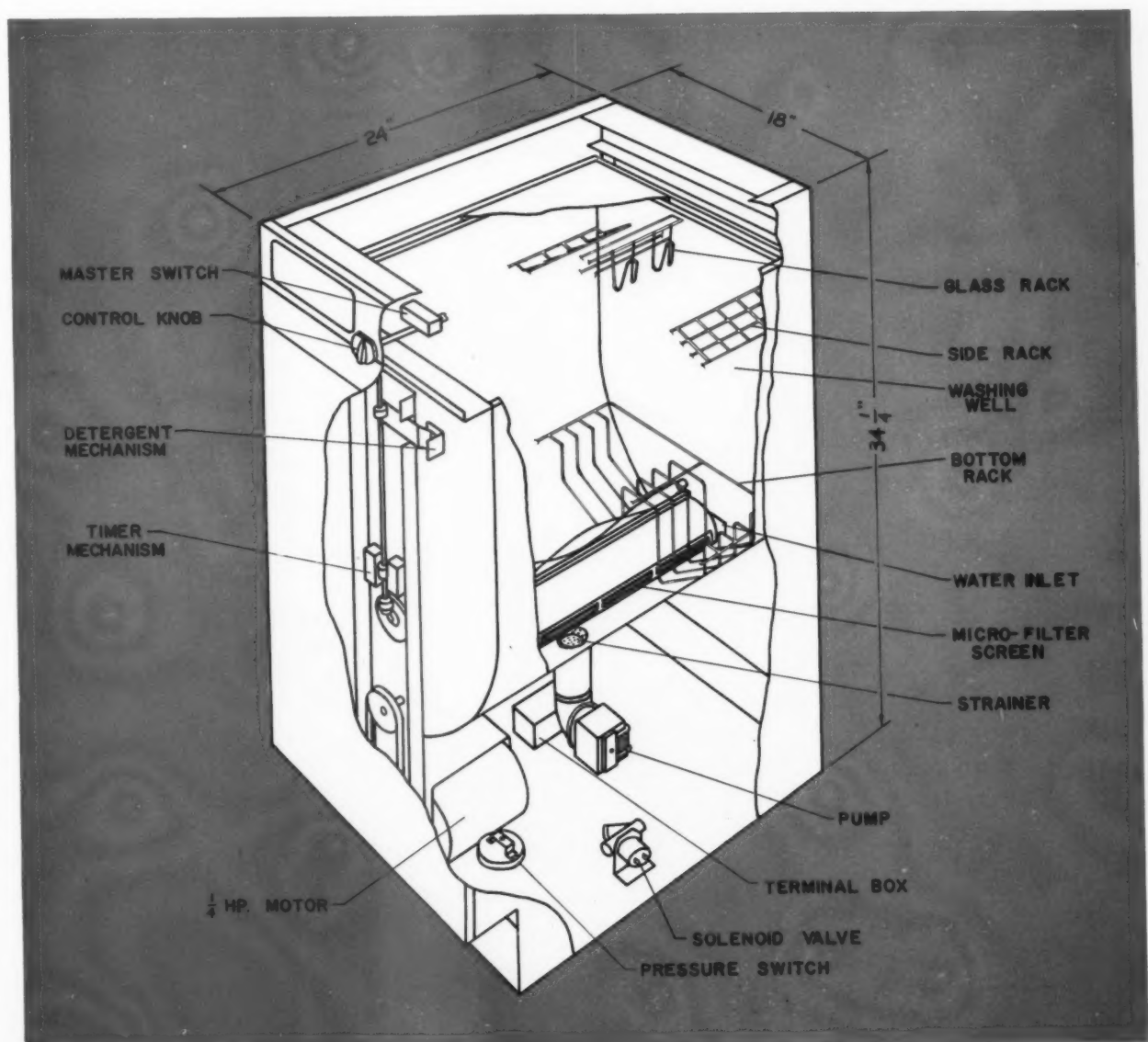
cabinet. All loading is from the top.

All mechanism and wiring is either directly in front or is mounted in the open bottom at the front. This includes the main ¼-horsepower motor, pump and motor assembly, direct drive from main motor, and all switches and other components.

For any service requirement, the machine is pulled to open position, four screws are removed and the front panel lifted from the machine. This leaves the mechanism exposed for service. This design feature should be immediately popular with service departments whose personnel have come to believe that they have become the "forgotten men" in the planning of the appliance designer.

DRAWING COURTESY BANKA MANGO INDUSTRIAL DESIGN

CUTAWAY DRAWING OF THE MODEL 9918 DISHWASHER





spot welding, most of it in automatic machines, results in rapid and secure assembly of tank and rotary basket... spot arc welds, each about three-quarter inch in diameter, add extra-strength fastenings at 14 critical points



New setups do fast work in fabricating washer-dryer components

by V. C. Rice • VICE PRESIDENT, MANUFACTURING AND ENGINEERING, NORGE DIVISION, BORG-WARNER CORPORATION

IN THE NORGE Effingham plant a completely-new set of machines is now in use for efficiently fabricating the "tank" assembly and the rotary basket of the new Norge combination washer-dryer. These cylindrical assemblies are major components of the new product. Both assemblies are produced from enameling grade sheet steel.

Basically, the tank is an assembly of stamped parts, except for the cylindrical shell which is rolled, rather than stamped, from a flat sheet or blank whose two ends are then joined by seam welding. Subsequently, the tank is expanded, embossed, and pierced before being joined to circular end portions and to several small stampings, all of which are produced previously by substantially-conventional methods in the company's own press department.

Especially noteworthy, however, are the machines that fabricate the cylindrical outer portions of the tank assembly of the basket and those that then join these to mating components. Most of these machines operate automatically, once hand loading has been done. They rapidly do the work required, and on a highly-efficient basis. Most components are light, and shifting from machine to machine is performed manually. Automatic handling would be complex and too costly to be justified.

Blanks for the cylindrical portion of the tank are of 18-gage steel, measures 23-7/16 x 81-43/64 inches, and are delivered on pallets adjacent to the rolls shown in the background of Fig. 1. After

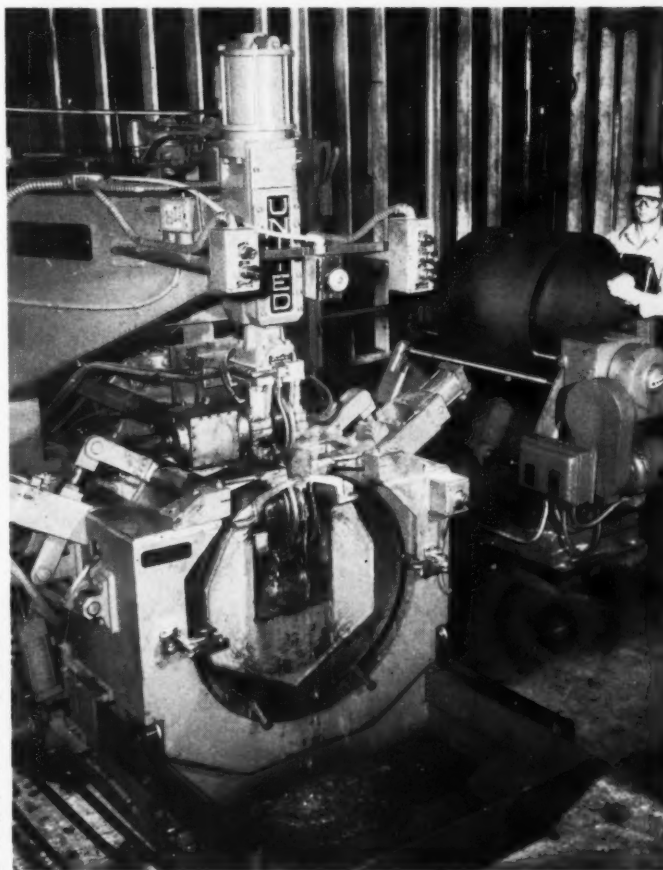
the roll operator runs a blank through the machine, he sets it on the floor next to the seam welder, shown in the foreground of Fig. 1, and unloads the cylinder

just welded in this machine. Then he loads the new cylinder, so that its two ends overlap, and presses the start button. This causes the piece to be locked

FIG. 1—(Right) Operator in the background has just rolled a flat blank into a cylinder. The cylinder in the machine in the foreground is having its two ends joined by mash seam welding with water-cooled wheels. This cylinder becomes a major component of a tank.

FIG. 2 — (Above) After the tank cylinder has been expanded, flanged, and embossed, the flanges are trimmed in the rotary machine at the right. Then, all radial holes are pierced in machine at the left.

FIG. 3 — (Facing page) In this machine, the circular rear head has been seam welded by two wheels to one flange of the cylindrical tank after clamping under a central ring in the holding fixture. This fixture is shown rocked forward for unloading and unloading.



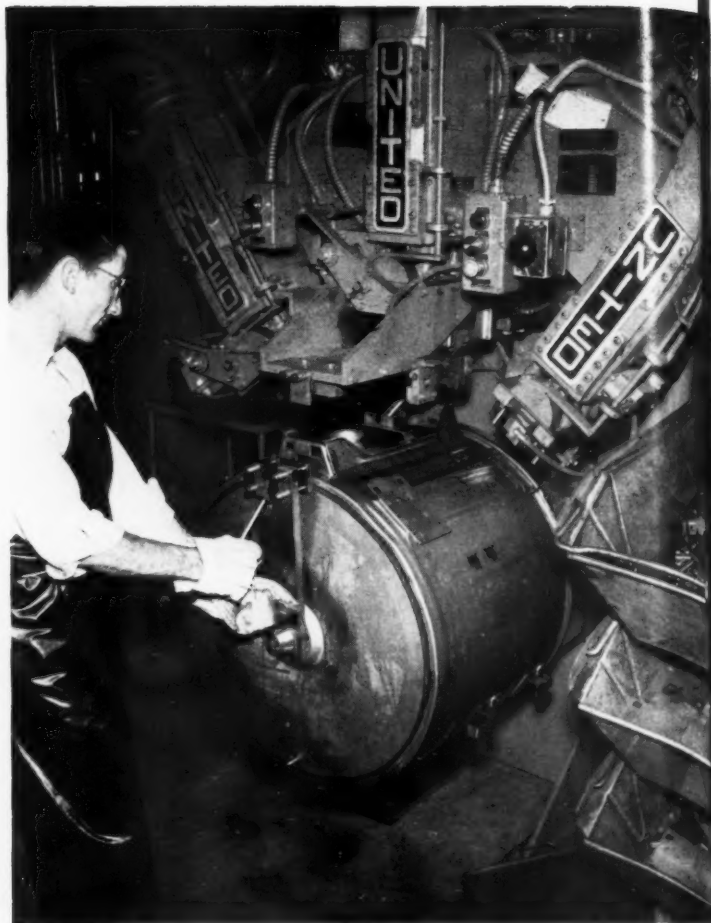
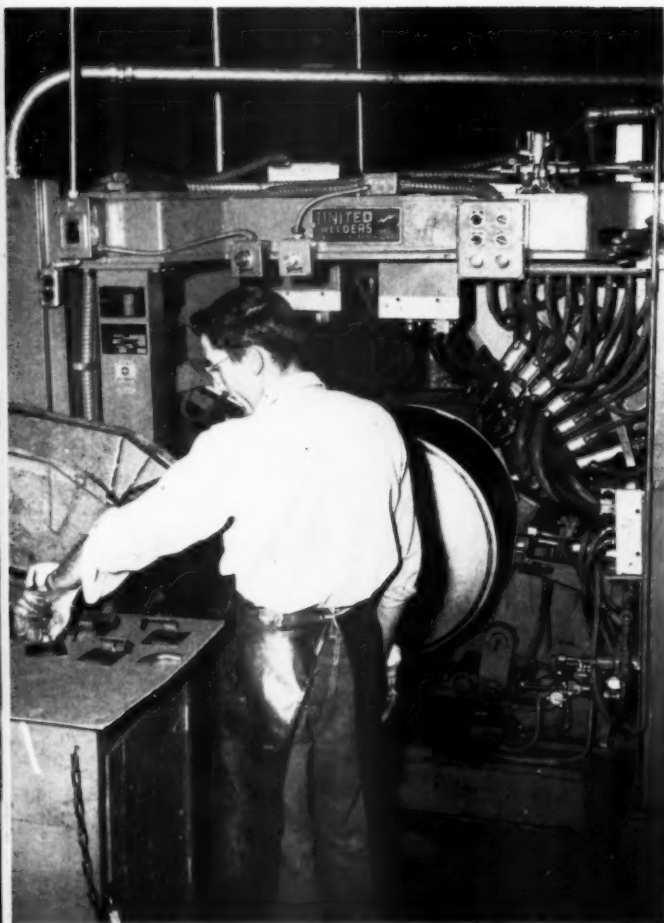


FIG. 4 — (Upper left) All small stampings on table at left are spot welded to the exterior of the tank after being set into holding fixtures and advanced to welding position. Individual guns are fired in sequence to make the welds. **FIG. 5** — (Upper right) Applying an end-locking fixture that helps position a large stamping around the sump. This stamping, and others placed in side heads, are spot welded to the tank after the three heads are advanced radially.

securely in a fixture and between the two seam welding wheels. Then, the work piece in its fixture is moved to the rear to produce the weld. During this weld, the upper wheel is pressed down by an air cylinder to mash the seam so that, when completed, the joint is only slightly thicker than a single layer of stock. At the end of the cycle, the machine unlocks and the fixture retracts to position for starting the weld on the next piece. One man readily tends both machines in Fig. 2 and passes the cylinders on to an expander.

Expanders effectively utilized

Most of the expander is located below floor level. Loading of the expander is done on an elevator with the cylinder axis vertical, after which, when the start button is pressed, the elevator lowers the piece to expanding position. Expanding stretches the cylinder to size, produces

some outward embossings and forms a flange at each end. Then, the dies retract and the work piece is elevated automatically for unloading and manual transfer to the rotary trimmer, right in Fig. 2. Embossings include drawing a sump and adjacent flat portions, and some stiffening beads along circumferential arcs.

When the tank cylinder has been loaded and locked in the trimmer, the piece is located so that two rotary cutters, one at the top and one at the bottom, trim both flanges as the cylinder is rotated. Narrow strips cut off are thrown into a scrap box after unloading the work piece by hand. Work done in the expander and trimmer bring the tank shell to final size and shape, and leave it ready for assembly to other parts after the piercing of 18 holes radially in the machine at left in Fig. 2.

For this piercing, the piece is loaded on an elevator in correct angular posi-



tion and then is lowered automatically to piercing position. There, portions to be pierced are clamped against suitable piercing dies, after which punches move radially outward to pierce all holes needed. When the punches retract, the piece is elevated automatically for manual unloading and is shifted to a machine where a drain fitting is swaged into a hole making a tight press fit.

This makes the work piece ready to receive a circular back panel, a drawn part that already has received its central hub. The back panel is welded in a machine with a tilting fixture, Fig. 3.

Welding tank assembly

After the cylinder is loaded into the fixture, the back panel is set in place over a central locating pin and the fixture is locked when the start button is pressed. Then, the fixture moves back to welding position where the axis is vertical, after which a pressure ring is lowered to clamp the back panel firmly against the flange to which the back is to be welded, and pressing this flange against a copper alloy backing.

Two seam welding wheels then are pressed down to bear at opposite ends of a diameter, and seam welds are produced as the work piece and its holding fixture rotate slightly more than 180 degrees, producing a complete circular weld. Thereupon, current is shut off, the wheels and clamp ring elevate, the fix-



FIG. 8 — Basket cylinder as it appears ready for insertion of end rings, and after baffles have been spot welded at four openings. End rings are pressed into place and then spot welded at flanges by 16 guns in the indexing setup shown.



FIG. 6 — (Far left) When machine welding of the tank is completed, it is placed on this rotary floor fixture where two operators apply a pair of gun welders that make several spot welds, including those that fasten a baffle ring next to the bottom.

FIG. 7 — (Left) Setup in which a series of spot arc welds are made inside the tank by a Sigma gun. Tank at left feeds argon gas to shield the welds. Electrode wire feeds from roll above.

ture rocks forward and unlocks, leaving the work piece ready for manual unloading and the machine ready to load.

After seam welding, the work piece is unloaded and is placed in the spot welder, being set over a holding fixture having suitable weld backups. This machine applies all of the brackets, but they normally are taken directly from chute bins spotted close to the machine. Each bracket is set into the corresponding holding fixture and, when all are loaded and a start button is pressed, the fixtures lock automatically and press each stamping tightly against roll cylinder faces in correct location.

All weld guns then fire in rapid sequence and are retracted. Thereupon, the fixtures unlock and retract leaving the tank assembly ready for hand unloading. Some of the bracket stampings can be seen in Fig. 4, which shows the assembly after loading it in the next spot welder where three more small stampings and two larger ones are applied after suitable loading under three radial welding heads.

In this machine, the tank is placed over a fixture that includes the necessary weld backup inserts. All stampings, ex-

to Page 62 →

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Loaded beam stress measurement

fulfills need for a new method of quickly evaluating
compressive stresses developed in porcelain enamels

by *D. C. Bowman* • CHICAGO VITREOUS CORP. RESEARCH LABORATORY,
A DIVISION OF THE EAGLE-PICHER CO.

THIS ARTICLE IS CONCERNED WITH a new method of measuring the compressive stress developed in porcelain enamels. This tentative test method has been given the title, "Tentative Physical Test P-45, Loaded Beam Method for Determination of Compressive Stress of Porcelain Enamels." It was devised approximately 18 months ago to fulfill a pressing need for a new method of quickly and accurately evaluating the relative compressive stresses developed in a large number of porcelain enamels.

The trend to lower fired enamels, and the increasing consciousness of industry to the advantages of resultant decreased warpage and distortion, have required the frit producers to make many stress measurements from day to day for both experimental smeltings and for quality control of production frit.

Advantages of new test

The Loaded Beam Method has the following advantages:

- (1) The test fixture is simple, rugged, inexpensive to build, and cannot easily be knocked out of adjustment; the accessory equipment required is widely available.
- (2) The 1" x 12" x 20-ga. metal specimens may be prepared from sheet by hand or power shearing and do not require any expensive hand forming operations before use.
- (3) All enameling operations are performed by spraying. Any experienced porcelain enameler can easily prepare the test specimens.
- (4) The test is direct reading in grams, load and evidences are that direct deflection measurements may also be made with a slight modification of the test fixture.
- (5) The reproducibility of the loaded

beam method has been found to be good and the data reliable.

(6) Numerous specimens can be quickly and easily prepared and tested inexpensively without elaborate precautions.

All of the equipment needed to perform Test P-45, except the firing furnace, is shown in Figure 1. The test fixture itself consists of three triangular hardened steel knife edges bolted securely to a 4" steel channel 16" long. It can easily be elevated to convenient eye level by any method; here small sections of H beams were used. A mechanical stop at the left of the knife edges aids in centering the specimens over the knife edges. Also required are a balance or scale capable of weighing to an accuracy

of .01 of a gram, a set of slotted metric weights ranging from 500 to 1 grams, a stencil, and stencil brush, a diffuse light source, such as a desk lamp or, as in this case, an adjustable fluorescent lamp with a plastic diffusing plate.

How to make specimens

The specimens used are 1" x 12" x 20-ga. strips of enameling iron, which have been sheared from flat stretcher leveled 28" x 72" sheets. The long axis of the strips should be at right angles to the direction of rolling of the sheet. The face side of the specimens should be scribed at one end before shearing and a 1/4" hole punched at this end for hanging the piece during firing. Any dis-

Fig. 1—Loaded beam test fixture and equipment for performing tentative test P-45.

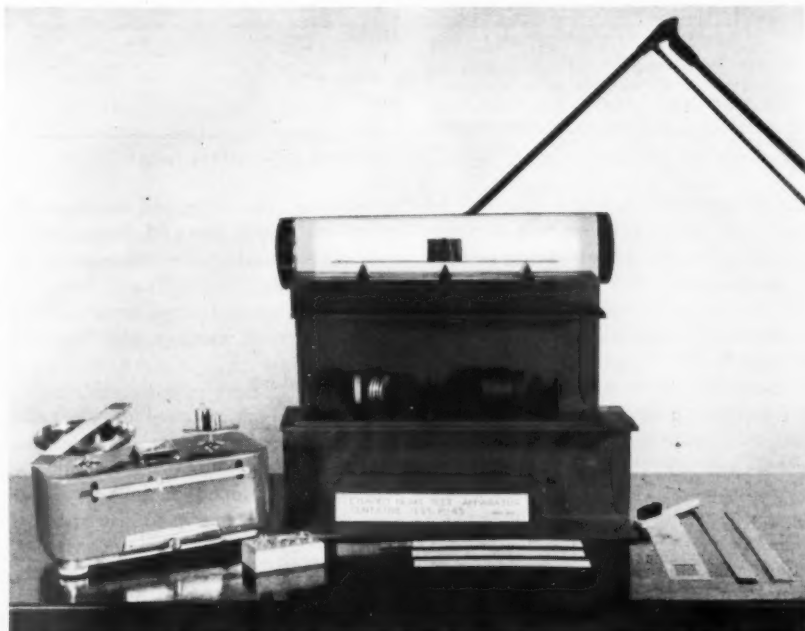




Fig. 2—Unloaded porcelain enameled specimen over central knife edge of test fixture.

torted or burred strip specimens should be discarded and an effort made to keep them flat during preparation.

The strips may be easily pickled suspended on wires using any commercial pickling system.

Ground coating is performed by plac-

ing the specimens, ten at a time, side by side on a horizontal rack and spraying across the length of the strips to achieve an even coating. After drying and cooling, the reverse side of the strips is then sprayed. Approximately 18.5 grams per sq. ft. dry is applied to each side of the strip. With a little experience, extremely-accurate bead-free specimens can be easily produced. The ground coat is fired hanging either on an A frame in a box furnace, or through a continuous furnace. All fired strips should be air cooled in a hanging position. It has been found advisable to check the ground coated strips in the three knife edges of the fixture before proceeding; any bent

or warped specimens should be discarded. Small divergences from flatness may be compensated for, but the best results may be obtained if the strips read "zero" and touch all three knife edges. They are then weighed to the nearest .01 grams and the cover coat applied to the un-scribed (or reverse) side of the strips by spraying them while resting side by side on a horizontal rack. Any desired weight of cover coat application may be used. The practical limits of from 20 to 60 grams have been used in most of our experimental work with 30 grams per sq. ft. the most widely used weight of application.

After drying the cover coat, a one piece mask is used to brush 1-11/16" from each end of the strips. This leaves 8-5/8" of cover coat on the strip which is incidentally the same amount as on the exterior of the standard expansio-

in Figure 3. It is not too surprising to find that the human eye can quickly determine the exact load to the nearest 1 or 2 grams required to extinguish the last glimmer of light between the center knife edge and the bottom of the test strip. The load determined to cause the strip to just touch is taken as a measure of the compressive stress developed by the cover coat enamel, and is recorded. Simple arithmetical calculations are used to correct the actual weight of cover coat on the strip to exact desired weight. For a cover coat application weight of 30 grams per sq. ft., this expression would be:

$$S = Lt \times \frac{1.7968}{W}$$

where S = Indicated compressive stress
Lt = Load in grams for cover coated strip.

1.7968 = Calculated fired weight of cover coat on 8 5/8" length of strip equivalent to 30 grams per sq. ft. dry.

W = Weight of cover coat on strip in grams to nearest .01 gram.

Five strip specimens are prepared and tested for each test enamel. The indicated stress for each strip is calculated, and a simple arithmetical average reported as the indicated average compressive stress for the porcelain enamel applied as a cover coat.

We have done considerable work with both ground coat and cover coat enamels "direct on" one side only of 20-gauge strips of various types and found that this method displays considerable promise. However, the oxidation of the metal must be taken into account. Obviously, such a test procedure simplifies the test even further by eliminating the ground coating procedure and is believed to be a desirable avenue of investigation.

Can measure cover coat only

It is also possible to measure the deflection of the test strips caused by application of the cover coat enamel. This is

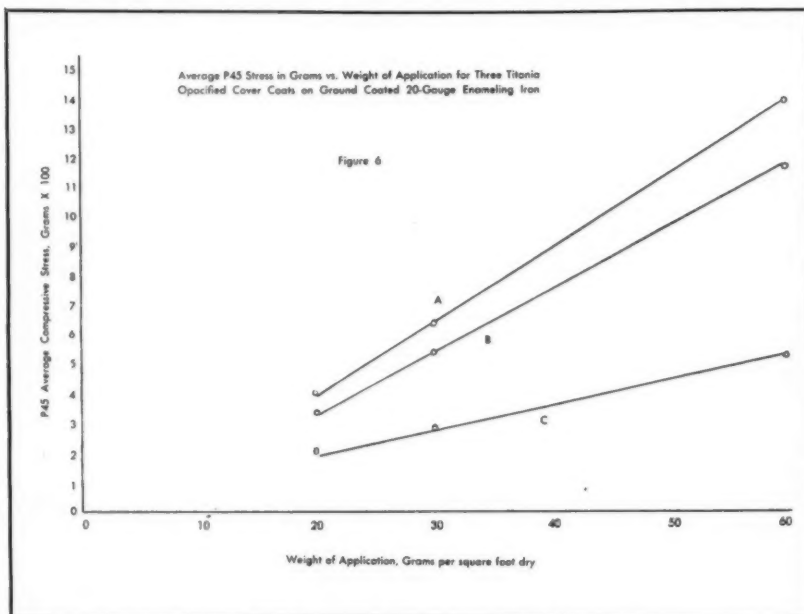


Fig. 6—Plot of average P-45 stress versus weight of application.

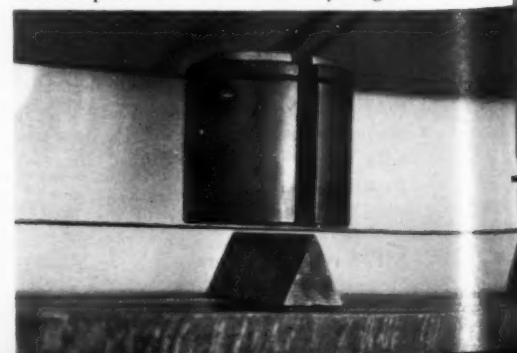
meter ring. The edges and backs of the strips are wiped clean of bisque cover coat. This operation is simple and rapidly performed. The cover coated strips are then fired hanging, cooled hanging, and weighed.

Test procedure

They are then centered on the knife edges as shown in Figure 2. The deflection of the strip caused by the compressive stress developed in the cover coat enamel causes the strip to rise appreciably above the center knife edge.

The slotted weights are placed over the center of the strip until it just touches the center knife edge as shown

Fig. 3—Partially-loaded porcelain enameled specimen over central knife edge.



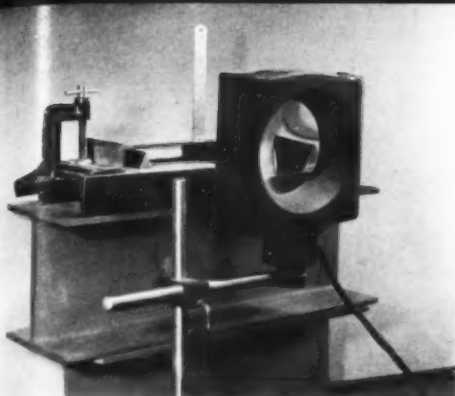


Fig. 4—Experimental test setup to measure deflection of porcelain enameled specimen with modified loaded beam test fixture.

done by a slight modification of the Test P-45 test fixture as shown in Figure 4. An illuminated magnifying lens is placed before the center knife edge and a metric scale placed at the apex of the rear of the center knife edge. Direct visual readings to the nearest .01 mm.

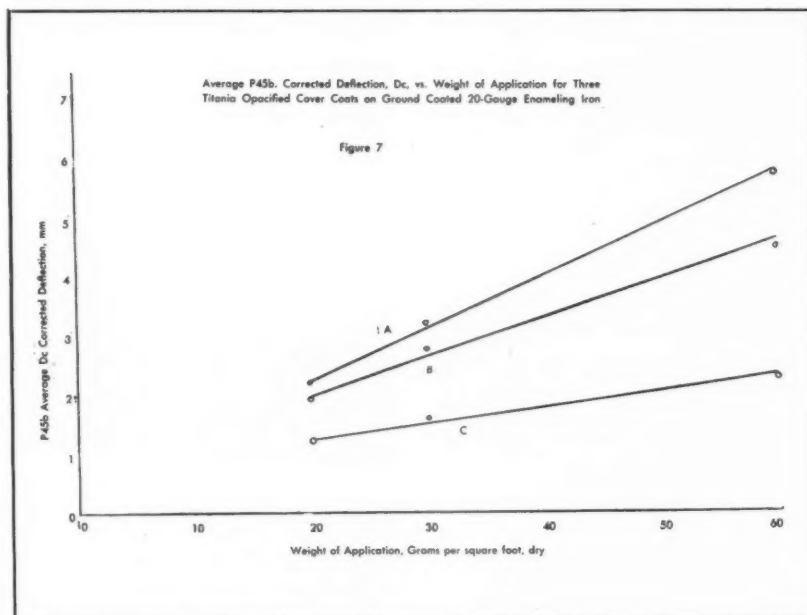


Fig. 7—Plot of average corrected P-45-b deflection versus weight of application.

of the deflection caused by the cover coat porcelain enamel are thus possible. A close-up view of the specimen through the magnifier is shown in Figure 5. The exact thickness of the cover coat must be determined if this method is used, and experimental errors due to visual parallax are possible. Surprisingly-good data, however, have been achieved by correcting the observed deflection to the exact weight of cover coat application on the piece and reporting the average corrected deflection for five specimens. The relationship between deflection as measured by this tentative modified test procedure and weight of application approaches a straight line,

but shows more of a curvilinear tendency than does the average P-45 load vs. weight of application relationship.

The relationship between average compressive stress as measured by the P-45 load and weight of application is shown in Figure 6. It will be noted that these appear to be straight line relationships. Other work at various weights of application between 20 and 60 grams per sq. ft. of cover coat application have verified the data shown. It is hoped that further experimental work will allow the use of cover coat "direct on" techniques to further simplify the test procedure and eliminate the "stiffening" of the thin beam-strip specimen. It will be noted that at 60 grams the load value is nearly 1,400 grams for high-stress enamel A. Heavier weights of application are believed to serve no useful purpose in today's commercial practice and, hence,

Reproducibility of Test P-45 Compressive Stress Results for Six Cover Coats on Ground Coated 20-Gauge Enameling Iron

Cover Coat Code	Average Stress, Grams	
	Trial 1	Trial 2
A	538	531
B	483	487
C	319	327
D	306	324
E	701	712
F	552	562

Fig. 8—Chart showing relative reproducibility of tentative test P-45 stress values for six cover coat porcelain enamels.

freely at the heavier weights of application.

Reproducibility good

How reproducible is the P-45 Loaded Beam Method? Does it show evidences of useful reproducibility? A controlled experiment was made to provide an illustrative answer to this question.

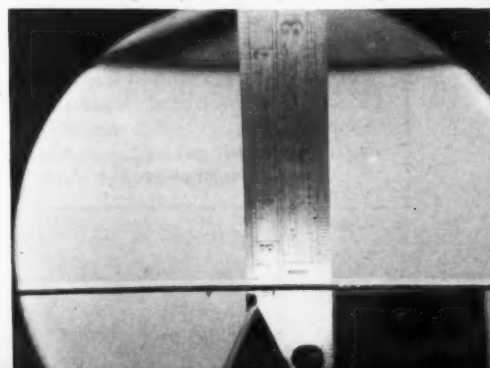
Six cover coat porcelain enamels were prepared and tested by two laboratory personnel. In the first trial, operator A performed half of the operations, while operator B performed the remaining half. In the second trial, the operators reversed roles, so that no single operation was performed twice by the same man. The results are shown in Figure 8.

It is believed that these data demonstrate the relative accuracy and reproducibility of the loaded beam method of determining the compressive stress of porcelain enamels and indicate that it is a valid method worthy of consideration and further experimental investigation.

Readers interested in setting up this test procedure may procure blueprints, equipment lists, and detailed instruction sheets without obligation by sending a letter request on company stationery to Special Projects Editor, MPM, or to the author.

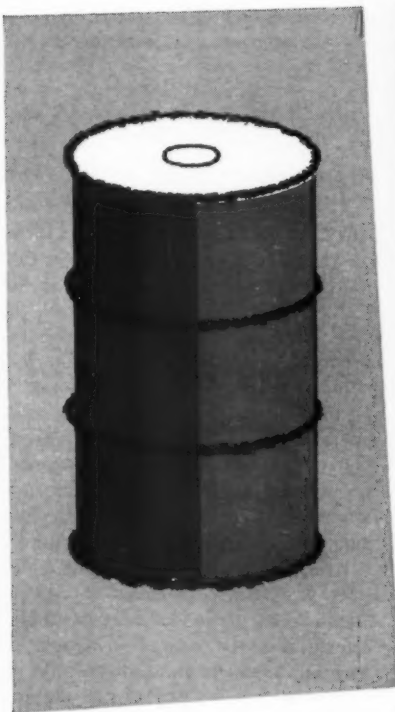
Presented at the 20th Annual Shop Practice Forum of the Porcelain Enamel Institute at the University of Illinois, Nov. 1958

Fig. 5—Closeup view through magnifying lens of porcelain enameled specimen showing deflection of the strip.



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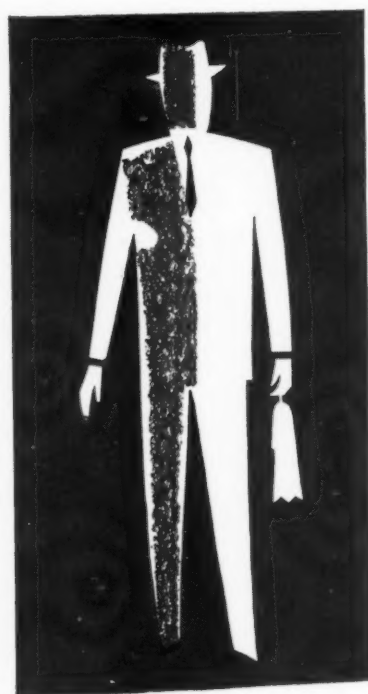
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NEW

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Refrigerator and Freezer Sealing Compound Bulletin

A description of how sealing compounds are used to seal in the quality of refrigerators and freezers is contained in a new booklet. The importance of adequate sealing is outlined first followed by a general description of several methods of applying the compounds. Complete specifications of the sealing compounds are listed also. Proper methods of selection form an important part of the booklet. The various types of sealers are listed with methods of applying each different compound. Write Dept. MPM, The Presstite-Keystone Engineering Products Co., 3738 Choteau Ave., St. Louis 10, Mo.

Catalog Describes Rotary Marking Machines

General specifications of the latest models of automatic, semi-automatic, and hand operated rotary marking machines are included in the latest catalog available. Also described are the latest types of peripheral marking machines. Various types of feeds and fixtures are also illustrated. The machines are completely illustrated, in addition. For the catalog write Dept. MPM, The Acromark Co., 9-13 Morrell St., Elizabeth 4, N. J.

Metal Stampings for Air Condition- ing and Refrigeration Equipment

A new, two color, 12 page brochure gives complete, factual insight into the methods, engineering quality control standards and production facilities of the firm. The company described is a manufacturer of eyelets, drawn shells, and metal stampings. Illustrations center on the new 60,000 square foot building in which contract component parts for air conditioning, refrigeration and general manufacturing concerns are manufactured. Complete services include planning to shipping on a nation-wide scope. Write to Dept. MPM, The Cly-Del Manufacturing Co., 16 Sharon Road, Waterbury, Connecticut.

Printing on Corrugated Boxes

A new booklet entitled "How to Use Printing on Corrugated" contains valuable information to help manufacturers

plan more effective printing on corrugated boxes and displays. The booklet explores every phase of printing from the basic box design, selection of the type of corrugated board, the background, copy, illustrations, number of colors and choice of typography. It also provides information on how to achieve better identification, how to build a brand image, etc. Printing with flexible plates, coloring the lining, and embossing are explained and illustrated. For a copy write Dept. MPM, Hinde & Dauch, Sandusky, O.

What is New in Stainless Steel

A new publication tells what is new in stainless steel raw stock. Described are new grades and finishes, new facilities, faster service, various grades, shapes and sizes, and the company's "Stainless Steel Library." Write to Dept. MPM, Armco Product Information Service, Middletown, Ohio, and ask for P. O. 5758.

Perforated Metals, Plastics and Composition Materials

A product's attractiveness can reportedly be increased considerably by utilizing perforated metals. It is possible to select from hundreds of designs in commercially rolled metals and gauges, or in masonite, rubber, plastic or insulated board. Many different sizes and shapes are available also. Write Dept. MPM, Hendrick Mfg. Co., 79 Dundaff St., Carbondale, Pa.

Stainless Steel in Wide Range of Types and Shapes

For production problems in the proper types of stainless steel to specify, information is readily available from a producer and its supplier branch. This company is said to be able to supply 2,351 shapes, sizes, finishes and alloys of stainless. For complete information on how trained salesmen and technicians can help in selecting or fabricating, write Dept. MPM, Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.

Airless Spray Coating Bulletin

Airless spray coating is the subject of a new bulletin that answers questions about the process. What it is, how it is accomplished, what temperatures and

pressures are required, how it functions, and its advantages are some of the questions answered in the bulletin. Equipment for airless spray coating is described and illustrated also. Accessories for the process are also illustrated and described. For a copy write Dept. MPM, Nordson Corp., 477 Bergen Blvd., Ridgefield, N. J.

Drawing Compound

A drawing, drilling, and tapping oil, known as Tuf Draw Compound No. 234, is covered in a two-page bulletin which is now available. The booklet covers various phases in the use of the viscous, honey-colored liquid, and the manufacturer claims that it contains no sulfur or other ingredients that corrode or stain metal parts.

For your copy, write to Dept. MPM, The Franklin Oil & Gas Co., 34-40 S. Park St., Bedford, Ohio.

Universal Power Input Plug

Two-wire parallel blade, three-wire standard grounding and three-wire pigtail grounding are some of the selections a user has for plug connections in appliances. Complete information is available on various types of cords to allow the user complete flexibility in lengths and methods of grounding. Samples and information may be had by writing to Dept. MPM, Alden Products Co., 1135 N. Main St., Brockton, Mass.

Principles and Practices of Resistance Welding

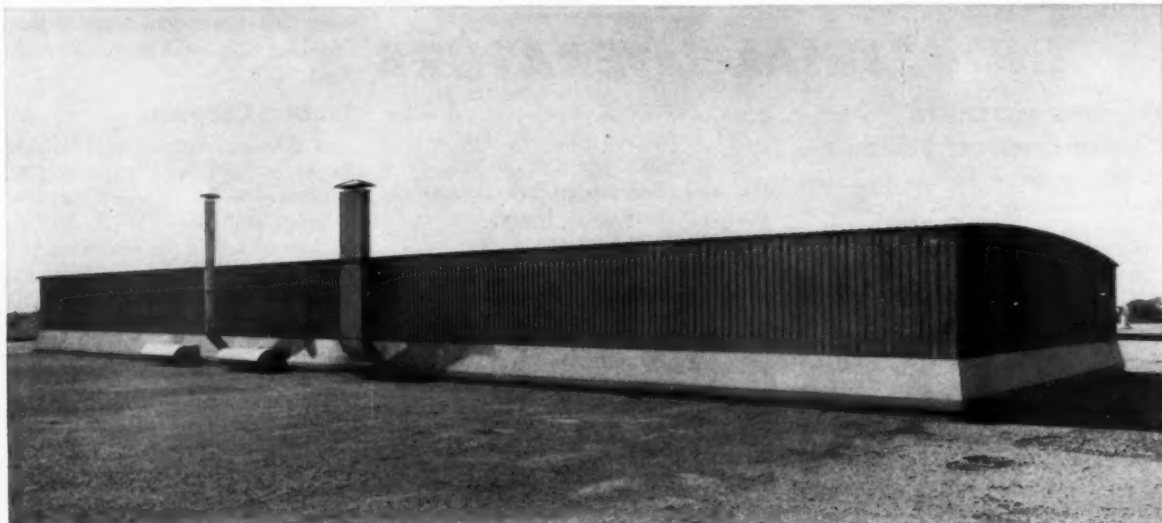
A 28-page bulletin, designated PP-54, illustrates and describes resistance welding in all phases, spot welding, projection welding, seam welding, flash welding, etc.

This bulletin gives the user a good working knowledge of the basic principles of resistance welding, and includes a resistance welding formula, data on how to calculate welding pressures, time in cycles, current in secondary amperes, tip diameters, projection specifications, seam welding charts, and flash welding information. Included also is other pertinent data on welding, mild steel, high carbon steel ternplate, tin plate, galvanized steel, stainless, copper, aluminum, etc.

For information on how to acquire this bulletin, write on your company letterhead to Special Projects Editor, METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.

to Page 74 →

Processing EQUIPMENT...



Mahon Dehydrating Oven with Controlled Dew Point Installed on the Roof of the Copeland Plant, Sidney, Ohio.

**COMPRESSORS are Dehydrated, Sealed, Inspected,
Tested, Painted, and Charged with Refrigerant on
ONE CONTINUOUS CONVEYOR PRODUCTION LINE!**



Mahon Three Conveyor Line Two-Stage Metal Parts Cleaning Machine—Another Unit of the Compressor Processing Equipment Installed at Copeland Refrigeration Corporation, Sidney, Ohio.

The High Temperature, Low Dew Point Dehydrating Oven illustrated above is part of the modern straight-line production facilities for processing Compressors in the Copeland Refrigeration Corporation's plant, Sidney, Ohio.

When you need Processing Equipment or Special Production Equipment of any kind, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers . . . you'll find them better qualified to advise you, and better qualified to do the initial planning and engineering of equipment that will produce the desired end result at minimum cost per unit processed.

THE R. C. MAHON COMPANY • Detroit 34, Michigan
Sales-Engineering Offices in Detroit, New York and Chicago

Engineers and Manufacturers of Complete Conveyorized Finishing Systems: Metal Parts Washers, Metal Cleaning and Rust Proofing Machines, Conveyorized Cleaning and Pickling Machines; Dry-Off Ovens, Spray Booths, Electrostatic Spray Enclosures, Flow Coaters, Dip Coaters, Finish Baking Ovens, and Paint Stripping Equipment; Core Ovens, Soldering Ovens, Dehydrating Ovens, Heat Treating and Quenching Equipment for Aluminum and Magnesium; Dust and Fume Control Installations, and Many Other Units of Special Plant and Production Processing Equipment.

See Sweet's Plant Engineering File for Information and Representative Installations, or Write for Catalogue A-659

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into the **PLANNING** and **ENGINEERING**
of **MAHON EQUIPMENT** is the item of
GREATEST VALUE to **YOU!**

MAHON

NEW

SUPPLIES & EQUIPMENT

Abrasive Belt Radii Finishing Hand Tool

An abrasive belt radii finishing hand tool is on the market. The device weighs slightly more than one pound without the small air grinder motor, and is said to be capable of producing



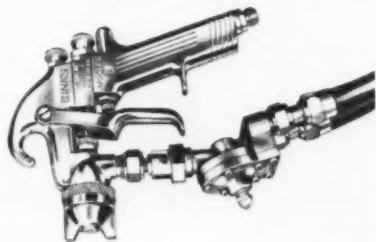
approximately 4,000 sfm when driven by an air motor running at 17,000 rpm.

The tool can be used for tool and die work, tool and fixture construction, spot metal finishing, de-burring and de-edging, machine construction and maintenance, and polishing on lathes and grinders, etc.

For further information, contact Dept. MPM, Peterson Tool and Mfg. Corp., Box 513, Okemos, Mich.

Circulating Fluid Regulators

A line of small circulating fluid regulators for spray painting systems has been announced. Designed to solve the problem of attempting



circulation at any available pressure, they are said to assure positive pressure at the gun. The regulators are available with a single or double inlet for circulating or direct supply systems.

For further information, contact Dept. MPM, Binks Mfg. Co., 3122 Carroll Ave., Chicago, Ill.

Sealer With High Freeze-Thaw Resistance

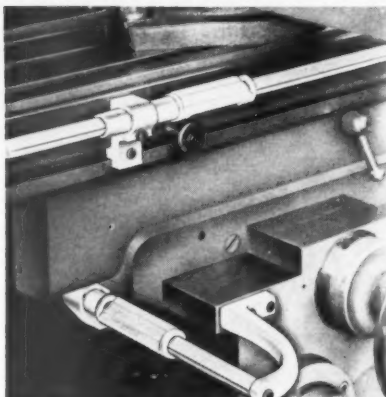
A sealing material known as WAT-R-BAR, and said to offer a new high in freeze-thaw resistance, is being marketed. The product, No. 586.7, is said to outlast conventional sealing materials by 300 to 1, and still be in perfect condition. The material is claimed to be ideal for any application that requires the effective prevention of air or moisture passage between similar or dissimilar materials.

For further information, contact Dept. MPM, Prestite-Keystone Engineering Products Co., 39th and Chouteau, St. Louis, Mo.

Self-Guiding Vernier Scales

A line of self-guiding vernier scales, called the Evertrue, and which may be easily mounted on any precision machine tool, assuring better-than-new accuracy, has been developed, according to the manufacturer. The vernier is said to be easily and accurately read without magnification due to the expanded graduations standing out in sharply-contrasting black on a satin chrome finish. The scales are said to be easily moved from one machine to another.

For further information, contact Dept. MPM, Edgcomb Engineering & Engraving Co., 1105 N. Hollywood Way, Burbank, Calif.



Toroidal Winding Machine

A laboratory toroidal coil winding machine, Model L-7, has been added to the existing line of seven models now being manufactured. The machine is said to have been designed along the lines of economy, simplicity, and accuracy,



and embodies many features, among which are: precision-cut molybdenum alloy steel driving gears; speed control for 1/6 hp dc motor, 0-575 rpm; and high speed geared predetermining counter.

Technical data is: Minimum finished inside diameter, 1/4"; Outside diameter, 1"; Maximum finished outside diameter, 9 1/2"; Maximum finished height, 3".

For further information, contact Dept. MPM, Universal Mfg. Co., Inc., 1168 Grove St., Irvington, N. J.



Airless Spray Painting

Airless spray painting, according to the manufacturer, features cleanliness and reduction in health and fire hazards, yet provides the speed of a spray painting application. The system is available for permanent or portable use, and materials can be introduced into the equipment by several methods. It is also claimed that 30 to 50 per cent paint savings can be effected.

In the photo above, the operator is seen spraying a mobile home with the airless spray method. This spraying system will be demonstrated during the forthcoming Western Metal Congress & Exposition to be held at the Pan-Pacific Auditorium, Los Angeles, Calif., March 16-20, 1959.

For further information, contact Dept. MPM, Nordson Corp., Amherst, Ohio.



Pressure-Sensitive Tape Dispenser

A dispenser that will dispense pre-cut labels, masks, or special die-cut shapes made of any pressure-sensitive tape, paper, cloth, foil, or film has been developed, it is claimed by the manufacturer. Tapes may have any grade of adhesive, from light to heavy industrial grades. Called the Tapematic, the unit delivers the tapes on a conveyor to the operator's finger tips, at the operator's own rate of speed. More than

to Page 61 →



IN PRODUCT AFTER PRODUCT AFTER PRODUCT ... WEIRTON HOT- AND COLD-ROLLED SHEET

In automobiles and portable TV cabinets, in air conditioners, stoves and laundry equipment—in almost any application you can name you'll find Weirton hot- and cold-rolled sheets at work.

Their roles: helping one manufacturer after another to produce standout products at low cost with no hitches in fabrication.

You can put to good use the uniform gauge, strength and ductility of Weirton hot- or cold-rolled sheet.

Weirton is always ready to serve your needs for quality sheets. For prompt and complete service just phone or write Weirton Steel Company, Dept. R-3, Weirton, West Virginia.



WEIRTON STEEL COMPANY
WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION



Central system

→ from Page 33

operators see their stock diminishing and signal in time, they need never run out of parts and wait on downtime.

When a machine breakdown now occurs, and the foreman arrives, he plugs his special telephone into the control box and informs the dispatcher of the trouble plus what action he is taking. If rapid repair can be effected, the operator will wait on downtime until he can commence normal production.

On the other hand, should a machine stoppage consist of a major breakdown, one that requires extensive repair, the foreman will advise the dispatcher by his telephone handset and will have the operator assigned to another machine.

According to Oster plant executives, higher rates of production become feasible with the aid of the new control system. Not only does the monitoring and control equipment render the machine operator more effective and make production equipment available sooner for actual production, but it also enables management to accurately gauge production rates, costs, efficiency, and equipment utilization.

The tabulating department at Oster

was next door to production control, and it was a simple matter to move information into it rapidly and easily. This resulted in a considerable speeding up of data processing.

Payroll compilation was also benefited. Pay cards formerly were not received for tabulating until 10 A.M. of the following day. Since operator earnings are computed daily, the payrolls were always one day behind. Now the information comes in at the end of the same day, and payroll figures are always current.

Roger W. Wallace, plant manager, reports the pilot installation has shown the following improvements in shop operations: (1) overruns have been completely eliminated; (2) an exact piece count is received immediately; (3) congestion in intra-plant traffic and material handling has been eliminated; (4) better machine utilization is achieved (assistance is directed and rendered immediately to either operator or machine which cannot properly function due to lack of material or mechanical difficulty); and (5) quicker and better communications between the tool room, production control, industrial engineering department, and punch press department have been obtained.

New products

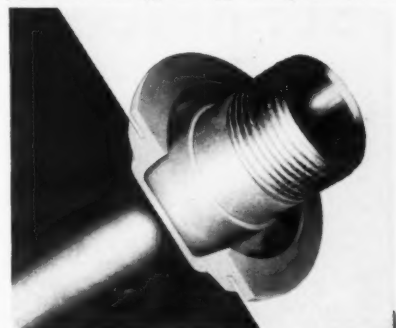
→ from Page 59

one person may use the same machine on a production line. A free demonstration can be given in the customer's plant.

For further information, contact Dept. MPM, W. H. Brady Co., 727 W. Glendale Ave., Milwaukee 9, Wis.

Vinyl Grommets

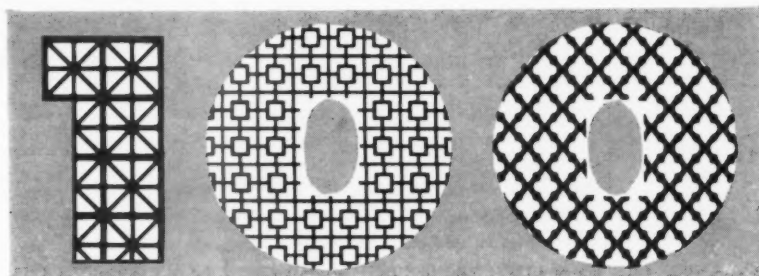
Self-sealing vinyl grommets, designed for all piping applications such as steam, water, gas, refrigerants, etc., are available to fit tube and pipe sizes from 1/2" to 4 1/8" tubing and 1/4" to



4" pipe. The grommets are said to be self positioning, to seal off air, moisture, dirt, and odors, to need no adhesive, and to snap into place. They are also said to withstand temperatures of -25° to 250° F. The grommets will pass through panels up to 14 gauge (.074) thick, and are said to allow for greater manufacturing tolerances.

For further information, contact Dept. MPM, L. M. R. Engineering Corp., Clayton P. O. Box 106, St. Louis 5, Mo.

for more than



pleasing patterns

LOOK TO HENDRICK PERFORATED SCREENS

FUNCTIONAL • DECORATIVE • ECONOMICAL

Increase your product's attractiveness — and sales by including a Hendrick Perforated Screen in your design. You can select from hundreds of attractive designs in commercially rolled metals and gauges . . . or in masonite, rubber, plastic, or insulated board. You can

choose from many different sizes and shapes, with either plain or panel effects. Hendrick perforated screens are made by the Pioneer of Perforated Metals, and backed by years of experience and modern manufacturing facilities.

HENDRICK MANUFACTURING COMPANY, 79 Dundaff St., Carbondale, Pa.

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Hendrick Wedge Wire Screens • Architectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armorgrids • Hydro Dehazers • Distillation Column Internals

Can You Use These **NEW** JUNCTION TERMINAL BUSHINGS?

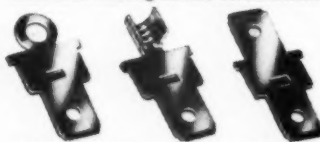


1. On final production test lines, quick-disconnect feature has saved time and simplified removal of defective parts.

2. Color coded, the bushings speed assembly and insure correct harness connections.

3. They speed up and simplify the removal and testing of component assemblies.

THREE TERMINAL STYLES mate with existing female terminations



SOLDER • CRIMP • QUICK-DISCONNECT

Send for samples and
try them on your
products



**HEYMAN
MANUFACTURING CO.**

KENILWORTH 16, NEW JERSEY
Manufacturers of the Industry Famous
HEYCO STRAIN RELIEF BUSHINGS

New setups do fast work in fabricating

→ from Page 51

cept the largest one applied in this setup, are placed in head fixtures that insure correct location, but the largest stamping that fits around the sump is positioned partly by a separate removable fixture arm that extends to the hub of the cylinder and is designed to apply pressure parallel to the hub axis. When the central head lowers, its electrodes produce spot welds needed for a firm fastening, as shown in Fig. 5.

These operations complete the machine welding of the tank except for a few spot welds in a standard single-electrode machine at several points, including some close to the corner where the head joins the cylindrical portion. In this, two men position the assembly manually and use a pedal switch to actuate the welder. Then, the same operators place the assembly on a floor turntable, as in Fig. 6, and apply two counter-weighted gun welders suspended by cables, to make several more spot welds, including those needed to fasten a ring baffle.

Argon gas used for fourteen special welds

All of these spot welds are of the resistance type, spot diameter being sufficient for the fastenings required. At 14 critical points, however, considerably larger spot welds, approximately three-fourths inches in diameter, are made to insure stronger fastenings. These welds are produced by a hand held Sigma spot-arc gun applied as shown in Figs. 6 and 7. This gun uses a one thirty-second-inch mild steel wire electrode that is consumed to the extent of about four and one-fourth inches per weld, the wire being fed through the gun automatically along with argon gas to shield the arc, for which a welder provides the current needed.

Gas is supplied via a flowmeter at the rate of about 39 liters per minute. At the end of the gun applied to the work, there is a sleeve that covers the arc, but has a serrated edge to provide openings for outward gas flow. This flow and feed of the wire occur, of course, only during the brief interval that the gun trigger is pulled, and while the end sleeve is in contact with the inner wall of the tank. Fig. 7 shows the gun in position for one weld.

As Fig. 6 indicates, the tank is supported, with its axis slightly inclined, by two rollers at the front and a trunnion bearing at the rear, so that the

cylinder can be turned easily to convenient position for each weld or group of welds. After the welds are completed, the operator applies water from a hose to form a pool as a check to make sure that there is no porosity or burn through at any weld.

When these operations are completed, the roll cylinder is ready for transfer to a department in which, after suitable cleaning and pickling, a vitreous enamel finish is applied to all surfaces.

Basket fabrication

One purpose of the tank is to house the cylindrical basket in which washing and drying are done, but the basket is a separate unit. It is fabricated, however, in the same department where the tank is produced. Each basket includes a cylindrical portion that, initially, is a flat strip of steel that is pierced with numer-



Expander used in fabricating "tank" assembly and rotary baskets of the combination washer-dryer. Most of the expander is below floor level, and the unit is loaded by means of an elevator. Expanding stretches the cylinder, and also does embossing.

ous rows of small holes and with five large openings into four of which drawn baffles have to be inserted and welded.

Both the strip and the baffles are produced in the press room. Each baffle is drawn with a flange that fits the exterior of the cylinder. Baffles are inserted around the drum fixture in the welder, Fig. 8. On this fixture, the two ends of the strip meet at the center line of one opening. When a baffle is set into this opening and is spot welded around the flange, the baffle holds the ends of the strip together.

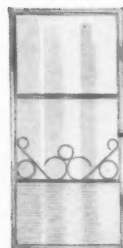
After each indexing of the fixture, a baffle is set into the hole at the top and is fastened by 16 spot welds around the flange when the head of the machine is

to Page 67 →

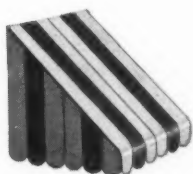
Amchem Alodine...



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PROTECTIVE



PREPAINT

CONVERSION



COATINGS

FOR ALUMINUM



If you fabricate aluminum products—painted or unpainted—Amchem Alodine can provide you with an effective and protective chemical conversion coating process of remarkable characteristics.

The Amchem Alodine process forms an amorphous coating which becomes an integral part of the metal, enhances the natural corrosion resistance of the aluminum and provides an excellent bond for paint.

Alodine's simplicity, speed and economy as a pre-paint treatment has gained widespread commercial acceptance in a wide variety of product applications.


Beyond product, Amchem provides the metalworking industry a complete service—processes, technical and engineering assistance, installation and instruction service—for corrosion protection, paint bonding, or other metalworking problems.

Write for complete information contained in Bulletin 1424A describing the uses of Amchem Alodine, as well as other literature pertinent to Amchem chemical conversion processes for the metalworking industry.



AMCHEM ALODINE

Amchem Alodine is another chemical development of Amchem Products, Inc., Ambler, Pa. • Formerly American Chemical Paint Company Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont./Amchem and Alodine are registered trademarks of Amchem Products, Inc.



A Simple Face Lift ...

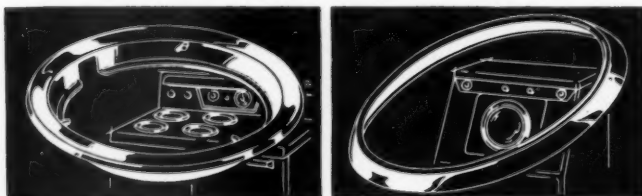
or a Complete Back Panel

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ECONOMICALLY YOURS

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A new look can be yours for little or no tooling cost with Pyramid Trim. Standard sections can be custom tailored to combine dollar savings with individual design . . . to simply rearrange your back guard, or to provide a complete new instrument panel. Details and samples on request.



Pyramid glistening stainless steel rings "dress up" today's best selling appliances. Roll-formed from endless spirals, Pyramid rings cut costs by eliminating waste.

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INDUSTRY MEETINGS

PRESSED METAL

Pressed Metal Institute's 10th Anniversary Spring Technical Meeting, Pick-Congress Hotel, Chicago, Ill., March 11-13, 1959.

METAL EXPOSITION

Eleventh Western Metal Exposition and Congress, American Society for Metals and Other Technical Groups, Pan-Pacific Auditorium and Ambassador Hotel, Los Angeles, Calif., March 16-20, 1959.

GAS APPLIANCES

Gas Appliance Manufacturers Association's Annual Meeting, Americana Hotel, Bal Harbour, Fla., April 1-3, 1959.

ARCHITECTURAL METAL

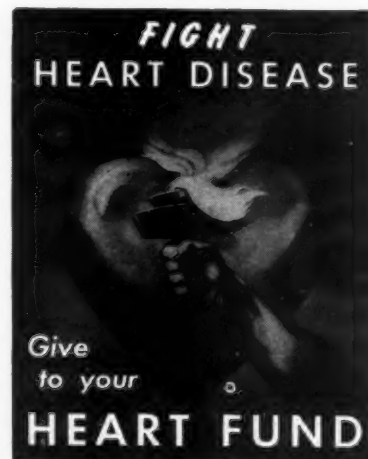
National Association of Architectural Metal Manufacturer's 21st Annual Convention, Monteleone Hotel, New Orleans, La., April 12-17, 1959.

PACKAGING

American Management Association's 28th National Packaging Exposition, International Amphitheatre, Chicago, Ill., April 13-17, 1959. Concurrently, AMA's National Packaging Conference, Palmer House, Chicago, April 13-15, 1959.

TOOL ENGINEERS

The American Society of Tool Engineers' Annual Meeting, Schroeder Hotel, Milwaukee, Wis., April 18-22, 1959.





Typical 6-year Inconel drop rod has never had attention. Ready for more 1550°F service at U. S. Porcelain Enamel Co., Los Angeles.

Do your drop rods hold up like this for 6 years? Wrought Inconel drop rods do

This drop rod served five years in a 1550°F enamelling furnace, holding fixtures and ware. Then it was transferred to a modern straight-through furnace for another year, where it's still at work.

Notice tightly adhering scale and the absence of any necking-down. It's ready for more years of service.

Take a tip from U. S. Porcelain Enamel Co., Los Angeles—where this

and other wrought Inconel* nickel-chromium drop rods gave 2-3 times more life than rods of other alloys.

Why Inconel drop rods hold up so long


First: Wrought Inconel drop rods have excellent high temperature strength — handle heavy loads at burning heat, without stretching.

Second: Wrought Inconel drop rods have excellent high temperature corrosion resistance—form a thin, tightly

adhering protective film. Won't spoil ware by flaking off.

See how Inconel burning tools can lower your costs! Write Inco for big, illustrated booklet — “Keeping Costs Down as Temperatures Go Up.”

Inconel burning tools are available from your fabricator. *Registered trademark

The International Nickel Company, Inc.
67 Wall Street  New York 5, N. Y.

INCO NICKEL ALLOYS

Clear anodize for magnesium; a wide range of colors

A clear anodic coating for magnesium alloys that can be applied in less than a minute has been developed.

The new anodize is used under a lacquer or varnish for maximum corrosion protection. Up to now, manufacturers desiring a "metallic look" for magnesium products have, in most cases, used lacquer or varnish over the bare metal. The clear anodize plus one of the top coats provides much better protection than the top coat alone, it is claimed.

Lacquer or varnish tinted with commercial dyestuffs can be applied over the clear anodize to obtain a transparent effect in a wide variety of colors. The colors have good permanence and are not washed out by detergents.

The clear anodize for magnesium is a modification of the standard anodic treatment. The latter results in yellow or green opaque deposits. Clear anodize uses a 40-volt current compared to 70-90 volts for the standard. The anodizing baths are identical.

Step by step, the magnesium clear anodize process is as follows:

Test panels of magnesium finished with clear anodize plus varnish (left), and varnish over bare metal (right), are compared after being subjected to 20-per cent salt spray for 510 hours. Anodic treatment is designed for application to all forms of magnesium, such as sheets, extrusions, die castings, and forgings.



1. The metal is buffed with a 320-grit abrasive to achieve uniform brightness of the desired lustre.
2. Parts are immersed in an alkaline cleaner for three to 10 minutes, then given a cold water rinse.
3. Parts are immersed in the anodizing bath for less than one minute, then given a cold water rinse and a hot water rinse.
4. When parts are dry, lacquer or varnish is sprayed on and baked dry (typical time and temperature: 20 minutes at 250° F.). Certain lacquers and varnishes can be air dried.

In 20-per cent salt-spray tests, mag-

nesium finished with clear anodize plus lacquer or varnish has passed 500 hours with virtually no change in appearance.

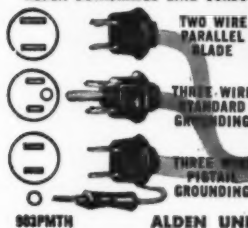
The anodic treatment is designed for application to all forms of magnesium, such as sheets, extrusions, die castings, sand castings, and forgings.

For additional technical details, write on company letterhead to "Clear Anodize," c/o Special Projects Editor, METAL PRODUCTS MANUFACTURING, York St. at Park Ave., Elmhurst, Ill.

Now! TINY LINE CORD DISCONNECT

LETS CUSTOMER SELECT LINE CORD LENGTHS AND GROUNDING METHODS TAILORED TO HIS INSTALLATION

ALDEN DETACHABLE LINE CORDS



903PMTH



ALDEN UNIVERSAL POWER INPUT PLUG

Eyelets or screw mounts on your equipment to provide three-way choice of AC input. Mates with any of the Alden Detachable Line Cords shown below. (Also available with leads as #903PMTHL.)

2826FIAC



ALDEN PARALLEL BLADE DETACHABLE LINE CORD

For use where your equipment needs no ground or is independently grounded. SV cordage #18AWG.

283FIAC



ALDEN 3 WIRE PARALLEL BLADE GROUNDED DETACHABLE LINE CORD

For use where your equipment requires grounding, and there is suitable outlet or adapter available. SJ cordage #18AWG.

2826FPTIAC



ALDEN PARALLEL BLADE PIGTAIL GROUNDED DETACHABLE LINE CORD

For use where your equipment must be grounded but lacks suitable receptacle. Pigtail contact mates with self-tapping grounding jack #110BCSGA. SJ cordage #18AWG.

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Miniature Dial
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Smallest
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Miniature
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GENUINE PORCELAIN ENAMELING ON ALUMINUM AND ALUMINIZED STEEL

All architectural and builders' requirements available in all colors, including pastels — (in a matt, semi-matt or gloss finish!!!)

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WEST PALM BEACH, FLORIDA

New setups

→ from Page 62

lowered and its guns are fired. Subsequently, this assembly is placed over a horn die in a press that embosses a frame-like bead around the sump opening.

To complete the basket, it is necessary to apply a stamped flanged ring at each end and to weld the flanges of these rings to the cylindrical basket wall. This is done in the welder, which includes fixtures that hold the rings and press them into the drum, centering all three components precisely in line with the machine axis.

When so clamped, each end of the drum-like assembly comes below a row of eight spot welding guns that are fired in rapid sequence making 16 spot welds. Subsequently, the assembly is indexed 90 degrees three times and, after each indexing, the guns make another set of 16 spot welds. This completes the assembly, but it has to be checked for run-out. This must not exceed 0.005 inches on the ring that bears on rollers at the loading end when the basket is assembled into the machine. After passing this test, the basket is ready for transfer to the department in which a vitreous enamel coating is applied.

Operations described above complete those done on new equipment in the department dealt with here. Components of the outer cabinet and some other units are produced in other parts of this plant. Many others are purchased, but all are assembled in the plant into complete washer-dryers that undergo thorough testing before shipment.

Editor's mail

→ from Page 12

charge for the material, kindly advise us and we will prepare the necessary requisition.

C. David Rife, Research Information Specialist
Lockheed Aircraft Corp.
Marietta, Ga.

Unfortunately, the supply of practically all back issues for 1958 has been exhausted. Eds.

Fabricating and finishing

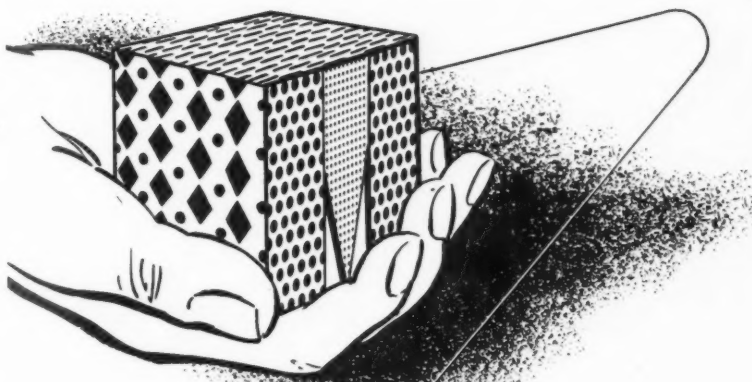
Gentlemen: In one of the issues of METAL PRODUCTS MANUFACTURING during the year 1958, an article appeared on the fabrication and finishing of metal shelves.

I wonder if you could kindly send me a copy of same.

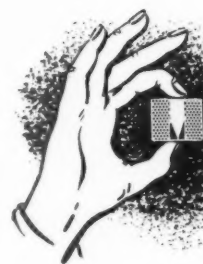
Howard Schulze, Chief Engineer
American Fixture, Inc.
St. Louis, Mo.

This information was included in a feature, "How Maysteel finishes top quality metal products," appearing in July, 1958 MPM.

MPM FEBRUARY • 1959



LARGE enough to handle
big jobs—



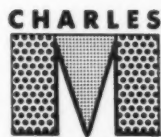
SMALL enough to
give every job
close personal attention

Charles Mundt & Sons are specialists in perforated metal design and production. Through 89 years of experience we have gained the "know-how" and developed the organization and production facilities to handle the big perforating job. Yet we have never outgrown the basic policy of maintaining a close working relationship with our customers. Our organization provides you with the best in service and personal attention and you deal direct with the people who have the full responsibility for your satisfaction.

With perforated metals you have a wide horizon to explore. New design opportunities are limited only by the imagination. We have ideas gained through our many years as specialists in the use of perforated metals. We'd like to share these ideas with you.

Perforating Specialists of All Types of Metals

Write for your free copy of
"Perforated Metals for Every Purpose".



CHARLES MUNDT & SONS

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Automatic Ice Cube Feature Expanded in 1959 Norge Line

Automatic ice cube service has been expanded in the 1959 line of Norge refrigerator appliances. An automatic unit is "plumbed into" one 15-cubic foot model, and the unit is optional in another 15-, and two 13-foot, refrigerators.

Other features include Swing 'N Serve swing-out shelves which Norge originated in the appliance industry for its 1958 line. Frozen food capacity is emphasized, with the 13-foot model having a capacity of 116 pounds. Additional features include a finger-touch shelf adjuster.

Gibson Refrigerator Co. to Step Up Production

The Gibson Refrigerator Co. announced in early January that it will increase production of refrigerators and freezers by about 23 per cent, and the manufacture of room air conditioners by about 27 per cent. The firm, a division of Hupp Corp., also has announced that it increased the production of its 1959 refrigerator and freezer line by 20 per cent at the beginning of the current model run. The output of the two appliances is currently 47 per cent above the original production goal, according to officials of the firm.

ARI Publishes New Standards

New ARI standards for two types of heat transfer equipment were published recently by the Air-Conditioning and Refrigeration Institute. They are: ARI Standard 430-58, for remote-type air-handling units; and ARI Standard 440-58, for remote-type room fan-coil units.

Both were developed by the Engineering committee of Sub-Section C of the Heat Transfer section of ARI, under the chairmanship of R. D. Blum, York Div., Borg-Warner Corp. and were published by ARI's Engineering department.

U. S. Chemical Milling to Build Vending Machines

United States Chemical Milling Corp., Manhattan Beach, Calif., announced the receipt of a \$2,000,000 contract for the production of commercial equipment.

The new contract is for the manufacture of several thousand fully-automatic fresh brew coffee and hot chocolate vending machines of advanced design, according to C. H. Lundquist, company president.

The new machines will be produced at Manhattan Beach under the trade name "Barvend," and will be marketed nationally by Automatic Foods Corp., Chicago.

Although USCM will manufacture all the basic components of the machines, and assemble the final product, considerable "specialty" subcontracting business will be generated for suppliers of special pumps, heating elements, coin changers, and other components, the company states.

11th Western Metal Exposition Set for March 16-20

The 11th Western Metal Exposition is scheduled to be held in the Pan-Pacific Auditorium and combined pavilions March 16-20 in Los Angeles, Calif. Concurrently, the 11th Western Metal Congress will hold technical sessions in Los Angeles' Ambassador Hotel.

Eleven Billion Hot Dogs



This new Westinghouse appliance, the "Dog-O-Matic," is said to cook a half dozen hot dogs in just 90 seconds. Each end of the wiener is attached to an electrode in the bottom half of the cooker. When the lid is closed, the current passes through the wieners. They are cooked from the inside out, and are said to retain all the flavor and juices.

Westinghouse market researchers, in studying the potential for the new product, discovered that Americans consume nearly 11 billion hot dogs a year, averaging approximately 62.5 hot dogs per person.

Service is the Big Problem, Says NARDA President

"Appliance dealers throughout the country must direct their major efforts toward improving the quality and effi-

Black Enamel For The X-15 Rocket Ship

When the United States Air Force X-15 rocket ship takes off (possibly this month) flown by test pilot Scott Crossfield in the first scientific attempt to crash through the earth's outer atmosphere into space and return with man at the controls, a new era in flight will have been inaugurated.

Why paint this hypersonic aircraft? If so, why black? Engineers of North American Aviation, designers and manufacturers of the X-15, say that high-heat-resistant black enamel was chosen as the best possible exterior coating in

view of the heat to which the plane will be subjected.

As the X-15 plunges earthward, leading edges and other portions of the ship are expected to reach temperatures of approximately 1,200° F. Concentrated friction of the air at re-entry causes the heat to build up throughout the plane's structure and, of all colors, black radiates heat at the fastest rate. Engineers point out that the problem is not one of reflecting heat away from the surface, as in the case of the sun's rays. Aerodynamic heat is absorbed heat.



ciency of their service departments," Joseph Fleischaker, president of the National Appliance & Radio-TV Dealers Association (NARDA) told the membership attending the annual convention of the organization at the Conrad Hilton Hotel Monday, January 12. He reported that the association will, for the second year, conduct a school next month at Northwestern University to help dealers strengthen their service.

"At the same time," he said, "we must work to free the public of the misconception that it has a perfect right to unlimited service on appliances and television. The public must expect a reasonable amount of service need and service expense."

Fleischaker said that the organization is "diametrically opposed" to the retailers being compelled by certain manufacturers in some areas to relinquish responsibility for service on their merchandise to manufacturer-established or -designated agencies. He termed the manufacturer policies of selling identical merchandise to builders at lower prices in comparable or smaller quantities than is sold to dealers "the acme of immorality and injustice in our industry."

Summer Furnishings Market Set For June 15-25 in Chicago

The board of governors of the American Furniture Mart, at their semi-annual meeting in Chicago recently, confirmed the dates for the summer International Market in Chicago as Monday, June 15 through Thursday, June 25, 1959.

Design & Mfg. Corp. to Produce AK Products

Design and Mfg. Corp., 2000 Illinois Ave., Connersville, Ind., is reported to have purchased a major portion of the AK division of Avco, Connersville, Ind. The report states that all commercial products formerly manufactured by the AK division will now be manufactured by the new company.

Whiting reports Mart survey

General Lawrence H. Whiting, president, American Furniture Mart, released results of a nationwide survey that showed 74 per cent of home goods manufacturers anticipate continued recovery, devoid of boom proportions during the first six months of 1959. Most of the manufacturers predicted 5 to 15-per cent recovery, although a few expect 25 to 40-per cent increases.

The survey, conducted by Chicago Market Daily, also showed that 57 per

cent have backlogs heavier than a year ago; 60 per cent had an increase in sales volume for the last half of '58 compared with the like period in '57; and 91 per cent are working forces from fulltime to overtime.

A parallel survey among retailers revealed that over 80 per cent expect a big increase in volume in the first half of 1959; 14 per cent anticipate business equal to last year; and 2 per cent think it will fall below the level.

Roto-Finish and Ransohoff Join Forces

Gunther W. Balz, president of the Roto-Finish Co., Kalamazoo, Mich., manufacturers of barrel finishing machinery, announced the purchase of Ransohoff, Inc., Hamilton, Ohio. Ransohoff manufactures metal finishing, phosphating, pickling and paint finishing systems, and foundry equipment.

R. E. Wigger, vice president of Ransohoff, Inc., will be in charge of the Ransohoff operations as executive vice president of the new Ransohoff Co.

Balz, president of the combined companies, stated the acquisition of Ransohoff by his firm will provide engineering and manufacturing facilities for a complete line of metal treating machinery for companies in the United States and abroad.

Committee C-22 on Porcelain Enamel Meets at Annapolis

Committee C-22 on Porcelain Enamel, American Society for Testing Materials, met recently at the Naval Engineering Experiment Station, Annapolis, Md. Hosts for the meeting were: Captain R. L. Mohan, U. S. N., commanding officer and director of the station; Commander F. P. Omohundro, U. S. N.; S. L. Earle; H. V. Nutt; and Forrest R. Nagley.

All-Stainless Steel Truck Body for the Dairy Industry



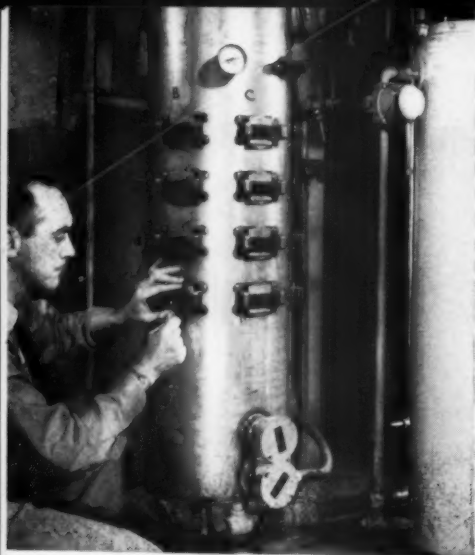
View of the new all-stainless steel ice cream truck made by The Schnabel Co., Pittsburgh. The stainless steel was supplied by Allegheny Ludlum Steel Corp. It is reportedly believed that this is the first all-stainless steel ice cream truck made, and that it opens a new market for the shiny, corrosion-resistant metal.

Inland Steel Changes Company Personnel

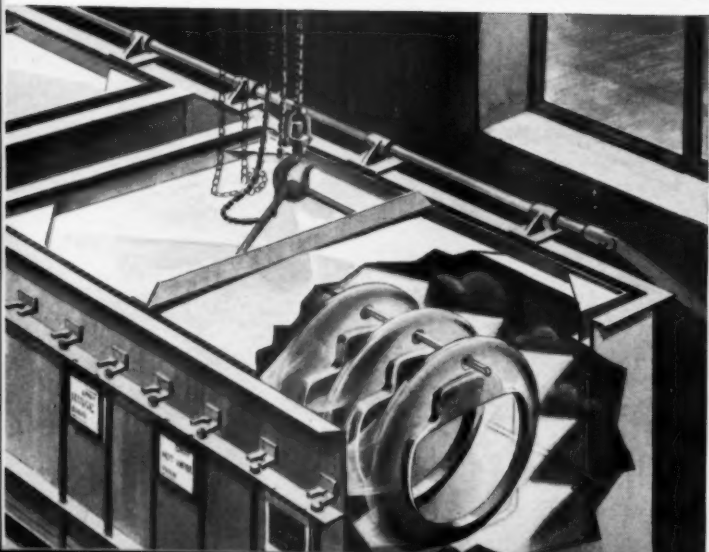
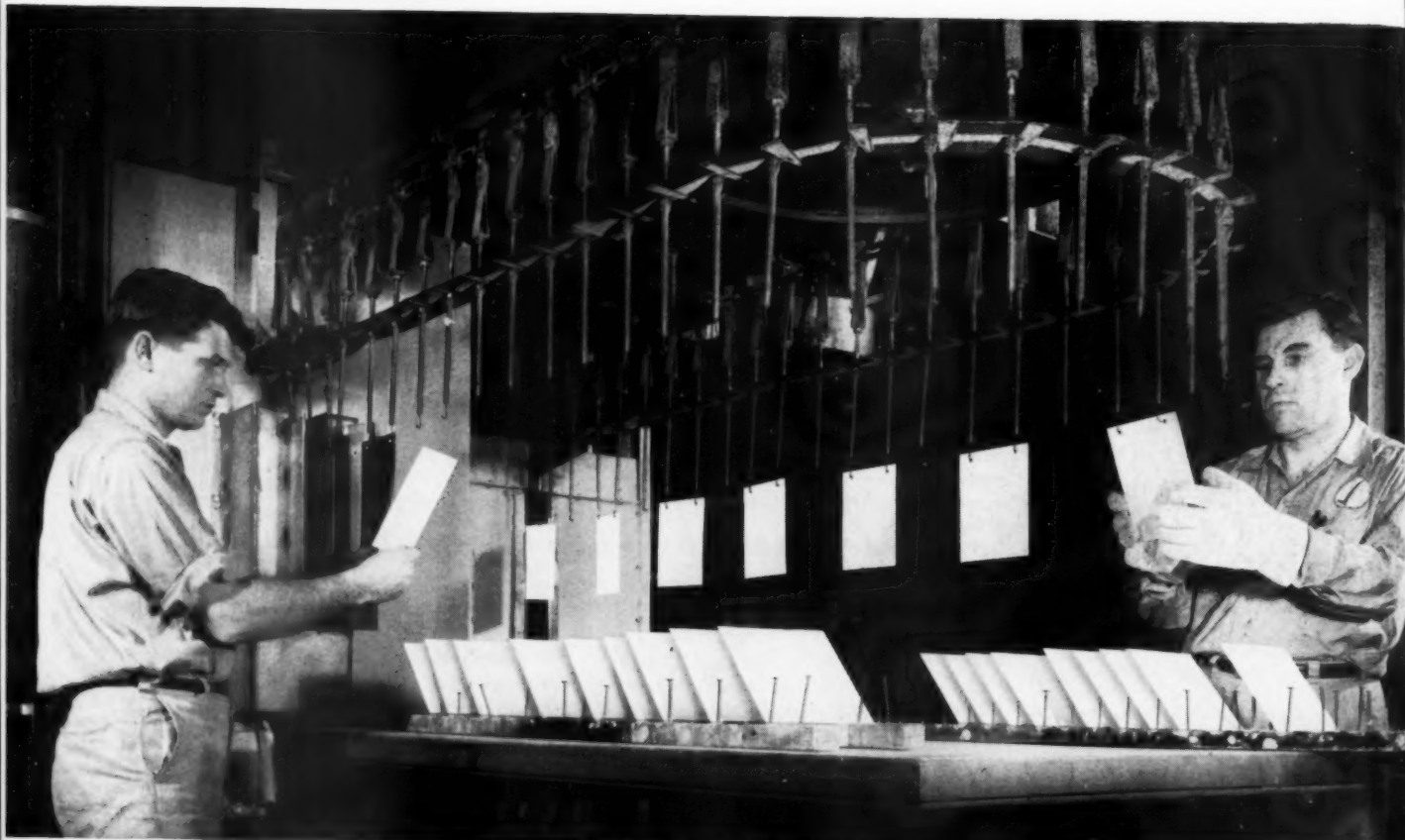
Inland Steel Co. announce comprehensive changes in its official personnel, effective January 16. Eight officers were

to Page 92 →





YEAR IN...YEAR OUT..



FERRO RESEARCH WORKS FOR YOU

Better products...Better processes...Better quality controls...for Better Porcelain enameling, and at lower applied costs

Serving our customers' needs is Ferro's principle business. That's why we maintain modern production facilities close by our customers' plants and an extensive field organization—both unmatched in size or quality in this or most other comparable industries. But Ferro's service to customers goes much further, and it is in these other areas customers gain their greatest benefits. *Ferro's research*, for instance!

Looking for thinner, lower cost *porcelain* finishes? Or for some that fire at lower temperatures so cheaper steels can be used? Or for protective coatings more resistant to acids, alkalies and minerals (for water heater tanks, for instance)? *All are now in development*, worthy successors to the frits you are now using first pioneered and perfected by Ferro.

Looking for more stable and uniform porcelain enamel colors? And for help in matching porcelain to organic finishes? *Ferro has what you need* right now; the result of research facilitated

by the most modern scientific equipment.

Looking for still better or lower cost ways to prepare metals for porcelain enameling? Or new mill additives, or perhaps mill formulas, to make some tricky new application work? Or again, for improved or lower cost means of applying the enamel slip to your products? *Ferro has many of these answers now*; also knows what *won't* work, but is ever seeking new solutions.

Looking for new firing techniques? Or for ways to save fuel and/or labor costs in this part of your manufacturing? *Ferro's research has produced answers* here, too—answers confirmed by application to actual production lines.

From basic research on raw materials through to devising improved quality controls for use in our customers' plants, Ferro strives constantly to improve *your* products, *your* processes, *your* production output and *your* profits. Are you fully utilizing these services? *They're yours free*, included in the cost of our products.



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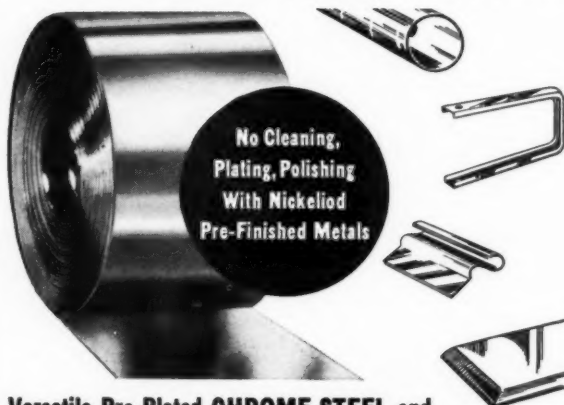
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Nashville 11, Tennessee • Los Angeles 22, California

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MOST electric housewares makers use STILL-MAN Electric Heating Units millions and millions of these outstanding components are in service in millions of American Homes.

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No Cleaning,
Plating, Polishing
With Nickeloid
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Versatile Pre-Plated CHROME-STEEL and NICKEL-STEEL Now Available in Three Grades

Even before you get them, these versatile design materials are more than half way through your production line! Already cleaned, plated, polished; you just fabricate and assemble. Save three out of five production steps — fabricate with standard methods. *Save even more now with C-Grade*, a new low-cost utility grade for applications that don't require the quality of our A and B grades. Sheets, coils, strips.

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ENGINEERED ATMOSPHERES
FOR BETTER PROCESSING

Air Systems

BAKING OVENS

Coordinated Production Line... Single Responsibility

There's a vast difference in both results and cost between finishing painted metal surfaces, for example, in an heterogeneous assortment of unrelated processing units and finishing such surfaces in an engineered production line system, all under a single design and manufacturing responsibility.

The latter is the Ross way. While each step in the process from phosphatizing to the final bake presents its own individual problems, the answers to these problems are so worked out as to produce the best possible finish at the lowest possible unit cost.

Ross Engineers would bring to your baking problem the experience gained by close to 40 years service to industry in the important field of baking painted metal surfaces.



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New Literature

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Maximum Finishing Oven Efficiency

Six questions are answered in a new booklet which carries the title above. Some of these are: Does the finishing system have capacity for increased production?; Is the equipment simple enough to allow easy maintenance?; What type of materials handling is best suited for a particular process in production? These are just a few of the questions answered in this booklet. For free copy write METAL PRODUCTS MANUFACTURING, York St. and Park Ave., Elmhurst, Ill.

Long Lasting Cling Oil

This manufacturer offers a cling oil which is guaranteed to last 3 to 10 times longer than ordinary oil. The four-page bulletin points out that tests have shown that this product reduces drippage up to 91 per cent, effects 89 per cent less bearing wear and replacement, reduces labor of oiling up to 90 per cent, reduces the use of power up to 43 per cent, increases cleanliness

and safety, and reduces fire hazard. It is said that this material is excellent for lubricating press equipment, conveyors, or moving parts in ovens. For your copy of this bulletin, write Dept. MPM, L. R. Kerns Co., 2659 E. 95th St., Chicago 17, Ill.

Electrolytic Zinc-Coated Steel

A free brochure is available which describes the qualities of this company's electrolytic zinc-coated steel for both outdoor and indoor use. This zinc-coated steel reportedly will not peel or flake after fabrication. For complete information and the free booklet, write Dept. R-7, Weirton Steel Co., Weirton, W. Va.

Bulletin Describes Range Timers

A new bulletin on stud mounting range timers—a combination fully automatic range timer and a 1 hour electric timer and an electric clock and a 4 hour timer has just been issued.

Photos and descriptions of the lubeless synchronous motor-powered timers are presented—products on which these timers are now being used are listed.

A scale diagram of panel opening details is shown. Specifications and op-

tional features are also listed. The former includes switch rating, motor lead lengths, and description of set knobs and front mount for both models, UL and CAS approved. Dial and set-knob colors, bezel finishes and motor lead lengths are among the optional features. Write Dept. MPM, Lux Clock Mfg. Co., Waterbury 20, Conn.

Folder Describes New Electrocleaner

A new, non-etching reverse current cleaner, is described in a folder recently published by a manufacturer of metal treating and cleaning compounds.

The folder points out that extensive field testing of the new compound has demonstrated its ability to remove soils without darkening the zinc or changing the color achieved in preceding buffing operations. Rejects are fewer. Another advantage described by the folder is the material's usefulness in cleaning not only zinc, but brass, copper, and steel, all in the same solution.

The folder, F 10466, gives the application procedure recommended for the use of Oakite Composition No. 195. It's available from Oakite Products, Inc., 157 Rector St., New York 6, N. Y.

FACTS from MEYERCORD

for latest information on plant and product marking
...ask for these brochures... free!

PLANT MAINTENANCE MARKING KIT for Water, Heating and Air Conditioning Systems

Now in use by leading manufacturers and service organizations. Provides standardized identification, absolute legibility, and permanency at remarkably low cost. Kit includes 474 signs assorted over 59 operational subjects. Easily applied in seconds.

LUBRI-CAL MARKING KIT

Takes the Guesswork Out of Lubrication
An important preventive maintenance program. The proper frequency of numerals, letters and instruction nameplates for identifying lubrication points and required lubricants on plant, production and operating equipment. Permanent, tough, oil-resistant transfers.

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Decal marking for "difficult surfaces"
Heat, abrasion, weather and many of the new industrial surfaces are deadly enemies of most product markings. But not to new, improved Meyercord Decal Markings—types C, G, J and H (heat resistant). Ask for new brochure.



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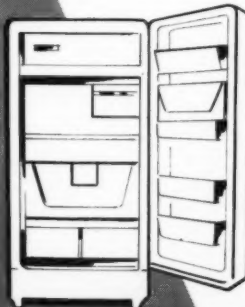
Dept. E-350, 5323 West Lake St., Chicago 44, Illinois



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Whether your trim hardware needs are for custom-made or stock tooled products, call on Grigoleit.

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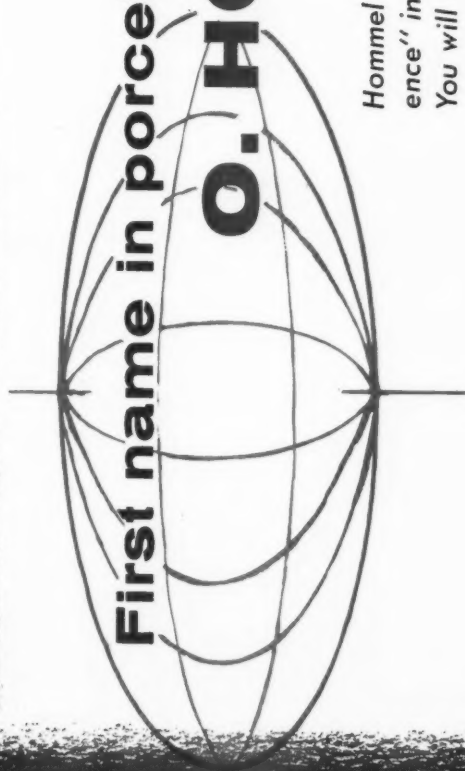
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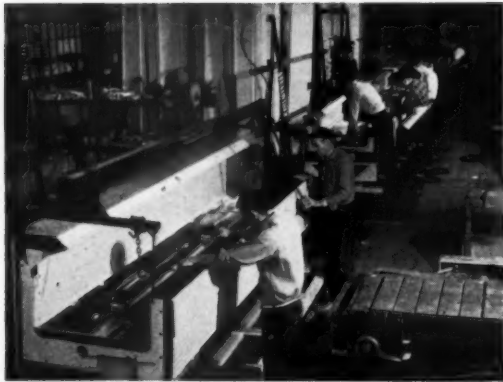
Hommel enamel frits will make a "difference" in the quality of your finished product. You will also see a marked change in lower production COSTS.

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Hommel frits eliminate warping . . . reduce rejects . . . bring DOWN SHOP overhead. Our Service Engineers are ready to confer with you on production problems. Write or call TODAY.

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Workmen busy on the
Husmann assembly line
in St. Louis producing
quality refrigerated
showcases for food markets
all over the world.

Accent on Excellence

Youngstown hot and cold-rolled sheets

Progressive
food merchandisers
realize they must
make every inch of space
show more if they hope to keep
competitive in today's fast-moving
market. Helping thousands of retailers do
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In fabricating these beautiful, highly functional
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touch in Youngstown service will help you create
products with an "accent on excellence".

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Manufacturers of Carbon, Alloy and Yaloy Steel, Youngstown, Ohio

Orders pour in at Housewares Show

30th NHMA exhibit filled with buyers; order taking healthy

AN MPM PRESSTIME REPORT

A PRESSTIME VISIT by MPM editors to the Housewares show revealed strong buying right through the middle of the week. This exhibit, held in Chicago, Jan. 12-16, has been hailed as one of the biggest ever to be held, according to reports from the National Housewares Manufacturers Association. It was all that and more, according to well informed sources at the show.

Buying was anticipated to be up over recent shows and indications at the show were that it was even better than hoped for. According to a number of exhibitors, order taking was stronger during the middle of the week than it ever was.

In an interview with the President of NHMA, W. H. Sahloff, president of the Housewares and Radio Receiver Div. of General Electric, it was revealed that at least fifteen housewares manufacturers have experienced an upsurge in buying. Mr. Sahloff had been making a personal pulse-feeling tour of the exhibit, spot checking the progress that some of the exhibitors were making in the "order taking department." He found that several manufacturers were doing so well that they had to call in the help of girls to alleviate the paper work while taking orders. In contrasting this year's show with last year's, Mr. Sahloff felt very little of the pessimism evident at the last Chicago show.

Recently introduced products at the show included removable thermostatic controls for portable cookers and frying pans. Though not brand new at the show, the response to the completely immersible appliances was extremely good. Practically every manufacturer of these cooking appliances had an impressive display pointing up the features of their particular brand. The trend in these appliances is to one thermostat plug control for several types of cooking pots and frying pans. In other words, the housewife need purchase only one control for an entire line of electrically heated cook ware.

Baseboard electric heater introduced

New at the show was a line of baseboard electric heaters by Emerson Pryne Div. of the Emerson Electric Co. The new 220-volt heaters come in 3, 4, and 6 ft. lengths, and wattages of 750, 1,000, and 1,500 respectively. Features of the unit include an integral wiring raceway and junction box to simplify wiring and easy installation; it can be mounted to the wall fully assembled and no insulation is needed behind the heater.

Overall enthusiasm at the show was very high. Exhibitors firmly believed that business will be very good for 1959. Some felt that, if the right circumstances exist, the latter part of the year could reach boom proportions.

"Very simply, we have been telling the consumer to buy now, buy at Joe's for less."

"We've been trying to sell appliances almost on the basis of price alone, when our competition isn't solely the appliance store in the next block, or the appliance manufacturer in the next state, at all. A large part of our competition is all other business, all other industry."

"There's no chain tying us to any other consumption factor, other than our own ability and willingness to sell the benefits of what we have to offer against all the other intelligent, skillful producers and sellers of all the other goods and services in our affluent society."

Romney said unreasonably-low appliance prices and profits have not only created a sick industry, but have not kept pace with the general rise in the national economy, because of blindness to the responsibilities of leadership among the leaders of the industry.

Statesmanship needed

What the appliance industry needs, according to the motors executive, is greater industrial statesmanship.

"Unfortunately, one leader in the appliance industry decided to accept for its appliance business the reward of the average company, and another used appliances as a price leader. One of the reasons for the present position of the appliance industry is that its leaders have failed to discharge the responsibilities of leadership or to accept the rewards of leadership."

"The industry's leaders have been inconsistent within their own operations. They decided to take a lower average profit on their appliance operations but to take larger earned rewards on other parts of their business. Not only does the industry need the kind of leadership that recognizes the proven economic principle of reward based on contribution, but the others in the industry, including retailers, must be willing to practice adherence to the principle as well."

The fulfillment of the responsibilities of leadership will help to put the industry in a position to "realize the greater opportunities that lie ahead in the appliance industry."

Romney said American Motors' management was "as determined to have Kelvinator realize its opportunities in the appliance industry as we were to have Rambler realize its opportunities in the automotive industry."

Kelvinator's six moves

He cited six Kelvinator moves aimed at increasing the consumer-benefit appeal of its products and its advertising, and strengthening the competitive position of its dealers:

to Page 92 →

American Motors president steps on appliance policies

IN A STIRRING ADDRESS before the annual convention of the National Appliance & Radio-TV Dealers Association in Chicago, January 12, George Romney, president of American Motors Corp., was open in his criticism of appliance sales policies. Romney, whose company's Kelvinator Division is one of the oldest major appliance manufacturing firms, offered the industry a two-phase formula for success based on:

1. Recognition of the new status of the American consumer, and
2. The need for those who are industry leaders to fulfill the responsibilities of leadership.

For a variety of reasons, during the past several years, Romney said in the face of record consumer disposable in-

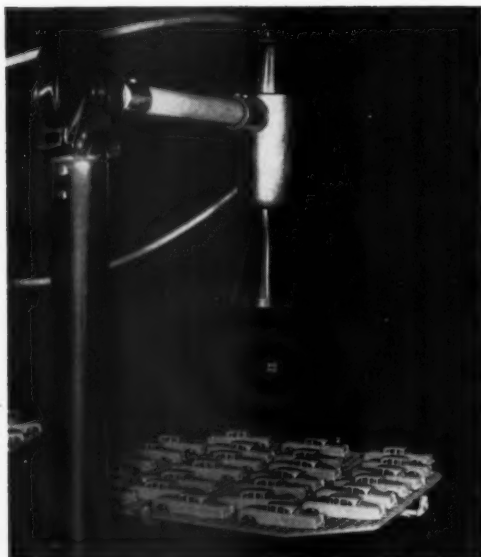
come the appliance industry has centered its efforts to stimulate sales primarily on drastic price-cutting. Because the American economy to an unprecedented degree is one of abundance, he said, the consumer has been exercising his prerogative of spending his money on other things he feels he wants more than current appliances, regardless of price.

Buy at Joe's for less!

"What have we as an industry been doing to appeal to consumers, in this new era of greater income, greater leisure, greater output, more things to spend your money on, and more pressure from all producers and sellers to win the consumer's buying favor?" Romney asked.

tootsietoys

are painted by the millions with
RANSBURG NO. 2 PROCESS



Miniature automobile bodies of the tootsietoy line are efficiently and uniformly painted as trays of cars pass below one of the four Ransburg No. 2 Process atomizing bells.

QUALITY OF THE FINISH IS IMPROVED AND PAINT COSTS ARE CUT 65% WITH *Electrostatic Spray Painting*

Dowst Manufacturing Co., Chicago, are sticklers for quality in the production of tootsietoys which are turned out at the rate of 25 million a year.

That's one reason they changed from hand spray to Ransburg Electrostatic Spray Painting.

RESULTS? Rejects are cut from as much as 5% to about 1%, for they're getting a more uniform, higher quality coating on all parts.

Colors are changed easily, and paint mileage is stepped up substantially. For instance, on one toy item, a gallon of paint coated only 1800 units by hand spray. Now, with Ransburg No. 2 Process, they paint 5500 pieces per gallon. That's because of the unmatched efficiency of Ransburg No. 2 Process.

NO REASON WHY YOU CAN'T DO IT, TOO!

Whatever your product—whether it's large or small—we'd like to show you what RANSBURG ELECTROSTATIC PROCESSES can do for you in YOUR finishing department. Write for our No. 2 Process brochure which shows numerous production line examples of electrostatic spray painting on a wide variety of products.



RANSBURG
Electro-Coating Corp.
P. O. Box 7822 • Indianapolis 23, Indiana

January Market

→ from Page 40

per cent. Another factor that could help put Maytag ahead of 1958 by more than eight per cent is their new feature of timed-bleach injection.

According to Maytag and company representatives interviewed, this development is a significant contribution to home laundering. The new device was born out of the need for gradual injection of bleach solutions to eliminate the damage done to fabrics by the sudden dumping of highly-concentrated bleach solutions at the start of the wash cycle. Slated for the top-of-the-line washers, it is features like these that, combined with the expected sales upturn, could boost Maytag to the predicted level.

Another expresses confidence

At the same press conference where Maytag spoke, Robert E. Brooker, president of the Whirlpool Corp., outlined several reasons why his company feels confident about the 1959 sales picture. One of these was that consumers have confidence in the general economy, and that their credit obligations have been reduced in the past eighteen months, enabling them to buy wanted goods in the year ahead. Another reason was that the quality of the product line, and its value, would be Whirlpool's best salesmen.

With the addition of a dishwasher line, and an electric refrigerator with the automatic ice maker, Whirlpool has a complete gas and electric line. Brooker feels that a full line strengthens their position in the overall market picture.

The buying trend that began to take place in the latter half of 1958 should continue through 1959, according to Brooker. He concluded with a statement that the products with the lowest saturation will account for the greatest increase in sales.

New ideas in products

Several companies have brought out new products that are aimed for a greater share of present markets. For instance, Philco has a new built-in range that could go over well in the low-price category. Though not being delivered to distributors as yet, the oven can be placed on the top of the kitchen counter without "building it in."

A meat keeper that stores hamburger for up to a week, a one-button wash or dry cycle selector, and a more reliable roast control are featured respectively on the Westinghouse refrigerator, home laundry, and range lines.

Other products and features which are

expected to spark consumers to buy are a new organic copper finish on Preway built-in appliances, and an automatic ignition system for oil-fired space heaters built by the same company.

Dream appliances shown

A few of the major appliance firms had prototypes of new appliances displayed to test the reaction of buyers to new ideas. Hotpoint, General Electric, and Westinghouse were prominent among these companies. It is interesting to note that Hotpoint has brought out a product that a year ago was one of these test prototypes. It is a food warmer and a sink built with cabinets below, and intended for use in recreation rooms of modern homes.

Maytag Offers Timed-Bleach Injection



AN ADDED FEATURE of the top-of-the-line Maytag automatic washer a new automatic bleach injector, attached to the cabinet's interior, meters the flow of bleach after diluting it to gain the maximum benefits of bleaching action. Studies have shown that 92 per cent of all families doing laundering at home use bleach.

The innovation is said to provide the safest possible method of using liquid chlorine bleach, while retaining full benefits of the detergent's whitening and brightening ingredients.

More than 10 million houses in the United States are at least 50 years old, and 25 million are 30 years old. These figures are cited by the Plumbing-Heating-Cooling Information Bureau as evidence of the tremendous market for modernization in the old home field.

Predicts 5 Per Cent Gain in Plumbing-Heating Sales

A brisk demand for the products and services of the plumbing-heating-cooling

Fabricating tapered tubular legs for metal furniture

kitchen chairs, stools, and similar metal furniture have tapered tubular legs produced by blanking and forming operations

AT THE TIME the O. Ames Co., Parkersburg, W. Va., began making metal kitchen chairs, step stools, and high chairs, other manufacturers of these items invariably fitted them with legs made from steel tubing.

From the start, Ames did it differently. Instead of tubing, the company uses cold rolled sheet steel. The sheet steel is blanked and formed to produce the tapered tubular legs which are the outstanding design feature of the company's metal household furniture.

The tapering is achieved in the first blanking operation on the .041-gage by 21-inch steel sheet. In succeeding operations, the blank is trimmed and punched, crimped (U-formed), and rounded. A reinforcing insert is then spot-welded in, after which the leg is drilled and tapped at the insert to receive the support member screw at time of assembly.

The legs are then painted or chrome-plated, depending on the price class of

the finished article. A buffing and polishing operation precedes chrome finishing.

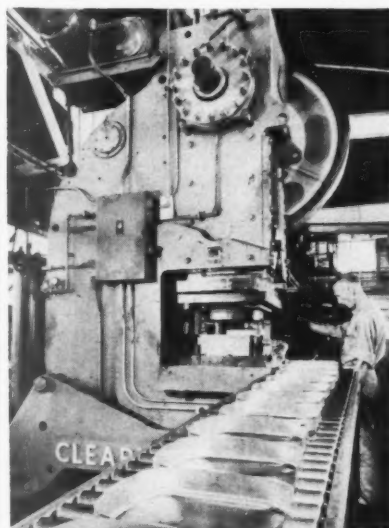
Cold rolled sheet is also used for the seats of high chairs and step stools. Surface finish is an important feature required of the .032-gage by 15¼-inch sheet used to make the seats because upholstered areas receive a critical paint application. Formability also is important because a 2-inch draw is necessary in forming the seat. For appearance and strength, the seat must be free of fractures, edge-wrinkling, and warping.

Following the basic operations on the furniture components, legs are integrated with seat and back to make a solid unit, and legs are fastened to the supporting member under tension to make the unit strong and wobble-proof. An added feature of the legs is the absence of protruding boltheads.

The O. Ames Co., a division of the McDonough Co., has two plants in Parkersburg.

PHOTOS COURTESY JONES & LAUGHLIN STEEL CORP.

A two-inch draw on a 150-ton press is required to form seats for high chairs and step stools in the O. Ames Co. plant.



Legs are fastened to the supporting member under tension, ensuring wobble-proof construction in the lifetime of the high chair or step stool. The legs on this high chair have been chrome finished.



industry in 1959 was predicted December 30 by Howard L. Spindler, president of the Plumbing-Heating-Cooling Information Bureau, which consists of more than 1,000 companies in the industry.

As a result of the high rate of resi-

dential construction, the bureau's executive believes that sales of plumbing and heating materials in 1959 will be about five per cent ahead of 1958, and that sales of cooling equipment are likely to exceed 1958 by as much as 15 per cent.

**COOK'S
HELPS
RAMBLER
"FINISH"
RECORD
YEAR**

*American Motors'
Rambler increased
production six dif-
ferent times to
keep pace with
demand for the*

*1958 models. Now, for the
first three months of the 1959 model
year, Rambler more than doubled its
last year's corresponding production.
Goal for the present quarter is even
higher. All eyes are on Rambler!*

*Cook's automotive finishes are a
persuasive part of the sell appeal of
the Rambler. "Big car room — small
car economy" are topped off with
an eyeful of beauty by Cook's. Just
so, Cook's adds the finishing touch
of beauty and protection to other
leading cars and a thousand-and-
one more products for today's living.*

*How about your own product? Find
out how Cook's Industrial Finishes
may step up its sales, and return
you big production savings as well.*



**COOK'S
PAINTS**

Cook Paint & Varnish Company
North Kansas City, Missouri
Factories: Kansas City • Detroit • Houston

INDUSTRY PERSONALS

Election of two new vice presidents of Harper-Wyman Company has just been announced by Philip S. Harper, Jr., president. **Howard J. Goss** will be vice president in charge of sales and **John F. Roggenkamp** will serve as vice president in charge of operations.

Goss joined Harper-Wyman in 1958 as a design engineer, became a sales engineer in 1940, and sales manager in 1956. Roggenkamp started as a tool and die maker in 1935, was made a supervising foreman in 1937, plant superintendent in 1939, and became Chicago plant manager in 1954.

Harper-Wyman has general offices in Chicago, and produces domestic gas appliance valves, burners, and controls at plants in Chicago, Princeton, Ill., and Mexico City.

Walter C. Fisher has been appointed director of marketing, and **James D. Dougherty** sales manager, in key Norge Div., Borg-Warner Corp. appointments. Fisher will be responsible for all Norge home appliance advertising, merchandising, home service, and other marketing operations. Dougherty will direct all Norge distributing and field sales force operations.

Two new vice presidents of Reynolds Aluminum Sales Co. were announced by David P. Reynolds, executive vice president of Reynolds Metals Co. They are **Keith E. Hall**, general manager of industrial market sales, and **Alfred H. Williams, Jr.**, general manager of architectural and building products market sales.

Ingersoll Products Div., Borg-Warner Corp., has appointed **M. R. McLary** vice president and manager, and **R. L. Cain** assistant secretary-treasurer, it has been announced. The firm manufactures a broad line of steel items, including washing machine tubs, kitchen and bathroom fixtures, architectural porcelain paneling, etc.



ROGGENKAMP



GOSS



DOUGHERTY



FISHER

George F. Butterfield has been named general manager of manufacturing of the Detroit Controls division of American-Standard, according to an announcement by F. J. Kreissl, division president.

Francis A. E. Spitzer has been appointed division president of the International division of Interchemical Corp., it has been announced. He succeeds Joseph G. Norris, retired, who will continue to serve on special assignments.

Spitzer joined the company in 1939 as a member of its legal department. Named assistant secretary in 1943, he became secretary and head of the legal department in 1945.



CAIN



McLARY

Glendon H. Roberts, president, Detroit Stamping Co., has announced a number of elections and appointments within the corporation.

William H. Roberts becomes executive vice president. **Harry C. Robeson** was elected vice president in charge of sales of all products. **Herbert McMillan** has been appointed sales manager of the stamping division, and **Charles Hoppe** becomes sales manager of the finished products division.

William S. Barnum has been appointed assistant manager of sheet and strip sales at Kaiser Steel Corp.'s general sales office in Oakland, Calif., it has been announced by C. L. Emerson, general sales manager. Barnum's appointment reflects the increased emphasis sheet and strip sales will receive as the result of Kaiser's current \$214,000,000 expansion program, the report states. Now nearing completion, new facilities at its Fontana, Calif. mill will result in nearly doubling the company's steel ingot capacity.

J. D. Rodgers and **R. A. Nederman** have been named technical service representatives of Oakite Products, Inc., in Houston and Kansas City, respectively.

Robert F. Seifert has been appointed assistant sales manager of International Paper Co.'s corrugated box plant in Mason, Ohio, it has been announced recently by Arthur B. Damon, general manager of the company's container div.

Dr. Karl L. Fethers has been elected vice president, research and development, by the board of directors of The Youngstown Sheet and Tube Co., Youngstown, Ohio. He is a native of Alliance, Ohio, and is a graduate of Carnegie Institute of Technology, the Massachusetts Institute of Technology, and holds the degree of doctor of science from the latter institution.

The appointment of **Stuart W. Good-enough** as manager of Chicago district sales for the American Steel and Wire division, U. S. Steel, has been announced

ROBERTS



ROBESON



McMILLAN



HOPPE



HALL



WILLIAMS



Industry personals

by **B. M. Ashbaucher**, newly-appointed western area manager of sales.

Concurrently, **Robert H. Hauger** was named to succeed Goodenough as manager of manufacturers products in the Chicago district sales office, and **David P. Philips** was promoted to assistant manager of the manufacturers products department, the position being vacated by Hauger.

Richard F. Fitzgerald has been made manager of the purchase research and analysis section of the central purchasing staff of Eaton Mfg. Co., Cleveland, Ohio. He will have the responsibility for applying critical analysis to Eaton's \$150 million of annual expenditures for materials and services. Before joining the firm in 1955, he spent several years in the purchasing and planning department of The White Motor Co., where he was technical assistant to the director of purchases.



JACOBS



FORSTER

James W. Jacobs has been promoted to manager of research and future products engineering, it has been announced by Richard E. Gould, chief engineer of Frigidaire Div., General Motors Corp. Also announced was the appointment of **Curtis P. Kelley** as supervisor of dishwasher and food waste disposer section of Frigidaire's non-refrigerated appliance engineering department, succeeding Jacobs.

Robert W. Forster has been appointed manager, business and market research, for Chrysler Corp.'s Airtemp Div., Dayton, Ohio. He comes to Airtemp from Whirlpool Corp., St. Joseph, Mich., where he served as manager of consumer and trade research for the last two years. Previously, he was a senior market analyst for another appliance manufacturer.

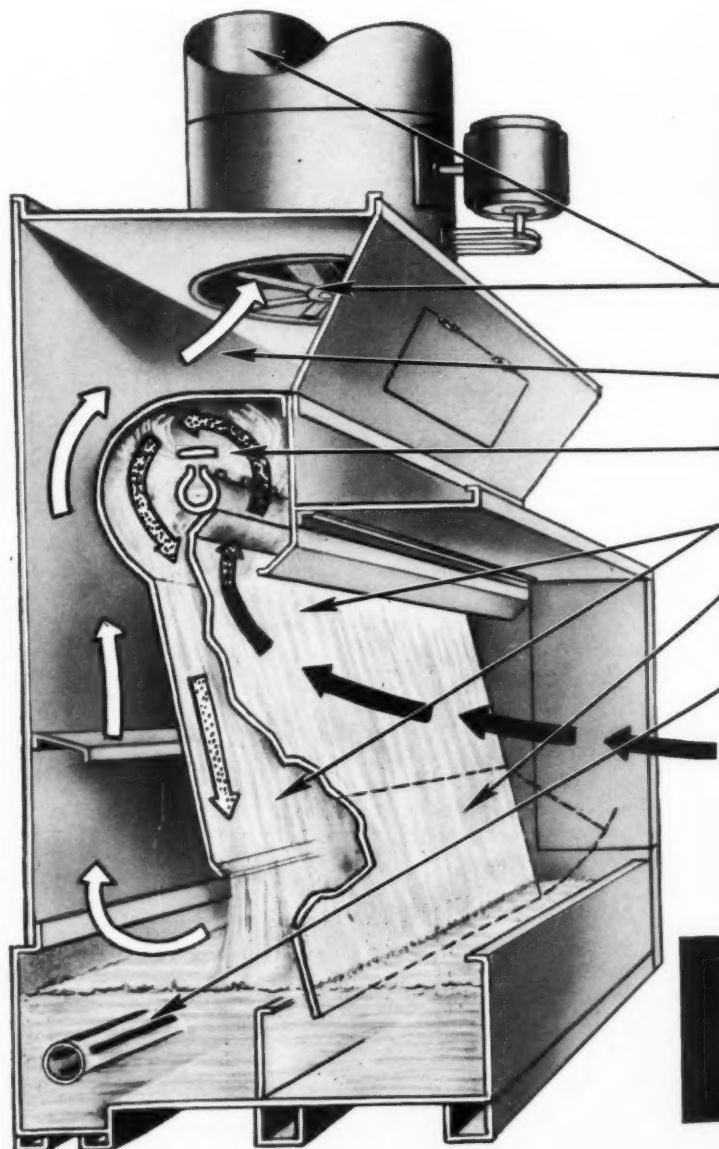
A top British appliance executive with 30 years' experience in the industry, **Norman F. T. Saunders** has been ap-

pointed managing director of Kelvinator, Ltd., Bromborough, England. The announcement was made by B. A. Chapman, executive vice president of the Kelvinator appliance division of American Motors Corp.

H. P. Mueller, Jr., executive vice president of Mueller Climatrol, a division of Worthington Corp., has announced the appointments of **Richard L. Signorelli** to the position of assistant to the vice president, manufacturing, and **William G. Crooker** to the post of chief engineer, cooling.

Frank W. Knecht, Jr., vice president of Sharon Steel Corp., and general manager of the Brainard Steel Strapping Div., recently announced reorganization of the management team, and the promotion of **Walter A. Garrett** as assistant general manager of the division.

Concurrently, Knecht announced the promotion of **J. Walter Angell** as assistant to the general manager, and in charge of the sale of all products; **John D. Boyer, Jr.**, to manager of field engineering; and **Fred S. Seybert** to chief engineer in charge of industrial and plant engineering, and tool and product



development. **Richard A. Wolschlag** was promoted to field sales manager. **Theron G. Craig** will continue as plant superintendent, and **John R. Rinderknecht** as division controller.

Paul M. Haas has retired as assistant comptroller after serving The Youngstown Sheet and Tube Co. for nearly 35 years. He has been succeeded by **E. Ross Mateer**, who has been with the company since 1923.

Appointment of **Paul E. Cate** as director of industrial and production engi-

neering for the Fulton Sylphon Div., Robertshaw-Fulton Controls Co., has been announced by W. D. Miller, vice president and divisional general manager.

Appointment of **T. W. Kelly** as sales manager of the Chicago Division of the Lamson-Sessions Co., industrial fasteners manufacturer, has been announced by J. G. Rayburn, vice president of sales. In his new position, Kelly will be responsible for Lamson-Sessions sales activities in the 14-state area covered by the company's Western Division.

George W. Burdg has been appointed vice president of The Moritz Steel Co., Cleveland, Ohio, a firm specializing in the warehousing of steel. Burdg, formerly sales manager of Moritz, is also president of Addison Process Corp., an affiliated company which is a service organization processing steel for industry.

The promotion of **Barbara Smith** to field supervisor of the home service department of the Norge Div., Borg-Warner Corp., has been announced by Jessie Cartwright, director. With headquarters in Chicago, Miss Smith will work closely with home service staffs of distributors nationally, and will direct home appliance product testing.

Max B. Roosa, executive vice president of Parker Rust Proof Co., Detroit, was elected a member of the firm's board, it has been announced by R. W. Englehart, president. Roosa has been with Parker for 22 years, and has served in various sales and executive capacities.

Style "E" Dynaprecipitor water wash spray booth SAVES MONEY 10 WAYS

- Stack and fan stay cleaner, longer**
Virtually no pigment gets to this area.
- Exhaust air washed 4 times**
Pigment is scrubbed out and trapped in collecting pan.
- Unbroken water curtain**
No nozzles to clog. Manifold disperses water evenly.
- Booth stays cleaner**
Every paint collecting surface is water-scrubbed.
- Easy maintenance**
Hinged front water curtain permits easy skimming of pigment from collecting pan.
- Clog-free water circulating system**
No dead-ends to accumulate sediment—is self-flushing.
- Saves on floor space**
Short depth wash unit gives water wash spray booth benefits in regular booth space.
- Inexpensive to own**
These booths are mass produced using standardized assemblies—available in 70 sizes and styles.
- Economical to operate**
Maintenance costs are low. Interruptions to painting production for cleaning are few and short.
- Insurance savings**
Earns lower insurance rate than conventional dry-type booth. Properly installed, exceeds requirements of fire, health and state authorities.

All the facts in this descriptive bulletin. Ask your Binks jobber or industrial distributor for Bulletin DUE, or write direct.

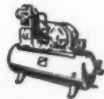


Ask about our spray painting school
Open to all...NO TUITION...covers all phases.

Binks
EVERYTHING FOR
SPRAY PAINTING



SPRAY GUNS



AIR COMPRESSORS



NATIONWIDE SERVICE

Binks Manufacturing Company
3122-40 Carroll Ave., Chicago 12, Ill.

REPRESENTATIVES IN PRINCIPAL U.S. & CANADIAN CITIES • SEE YOUR CLASSIFIED DIRECTORY

MPM FEBRUARY • 1959



MISS SMITH



ROOSA

James B. Rafter has been appointed manager of stainless bar and wire sales, a new post at Armco Steel Corp., Middletown, Ohio. S. P. Watkins is manager of sales of these products.

Michigan Chrome & Chemical Co., Detroit, announces the appointment of **Frank Jones** as director of market development. He will be responsible for developing new markets for the company's plastisols, fluidized bed resins, and other organic coatings.

Robert E. Lewis has been elected president of Sylvania Electric Products Inc., the company's board of directors has announced. Previously, he was a senior vice president of the company.

L. J. Minbirole, Jr., sales manager of the Udylyte division, The Udylyte Corp., has announced the appointment of **Ralph E. Kwarsick** as sales engineer to serve customers in the Chicago territory.



**Don't throw away
those epoxy-coated
rejects**

Here's a new paint stripper that will save them

Do you scrap perfect metal parts that have been imperfectly coated with epoxies, vinyls, polyesters and other hard-to-strip paints or lacquers?

In the last few months, users of Oakite Stripper S-A have eliminated many such losses. Here's what some of them say about it:

CALIFORNIA: An aircraft manufacturer tested many strippers on an epoxy designed to resist attack by hydraulic fluid. Finally found that Oakite Stripper S-A is "the only one that safely strips this paint from anodized aluminum."

NEW YORK: A camera maker coats flash bulb reflectors with black vinyl paint outside and aluminum paint inside. "Stripper S-A is the fastest ever used on our rejects."

OHIO: A maker of toy pistols had trouble stripping alternate coats of lacquer and metallized aluminum. Now "Stripper S-A does it amazingly fast and remetallizing is completely satisfactory."

CALIFORNIA: A producer of metal furniture uses Stripper S-A to remove clear epoxy from plated parts. Chemist says "This is the best stripper on the market."

ALABAMA: A hardware maker had trouble stripping lacquer from brass door knobs. Oakite Stripper S-A now does the work in "less than 1/3 the time taken by any other stripper."

NEW YORK: A manufacturer of business machines tested several strippers on various finishes on steel and aluminum. Verdict in favor of Stripper S-A was: "It's doing a wonderful job."

CONNECTICUT: A maker of brass lipstick shells has found that "Stripper S-A quickly strips epoxy lacquers from rejects and heavily coated work spindles."

CALIFORNIA: A missile maker reports that "Stripper S-A is doing a fine job stripping vinyl from stainless steel and titanium."

FREE Write Oakite Products, Inc.,
14F Rector St., New York 6, N. Y., for
complete information on Oakite Stripper S-A.

Technical Service Representatives in Principal Cities of U. S. and Canada

Export Division Cable Address: Oakite

In our 50th year.



METAL PRODUCTS STATISTICS

a current report on available production, shipment and sales figures for important products in the appliance and fabricated metal products manufacturing field

	1958 (Units)	1957 (Units)	% Change
Gas Water Heaters.....November	200,800	173,500	+15.7
Jan.-Nov.	2,463,300	2,359,500	+ 4.4
Gas Ranges, Built-In.....November	22,800	17,100	+33.3
Jan.-Nov.	207,400	180,600	+14.8
Gas Ranges, Free-Standing.....November	152,100	137,200	+10.9
Jan.-Nov.	1,512,100	1,652,200	- 8.5
Gas Furnaces.....November	86,500	61,400	+40.9
Jan.-Nov.	789,100	664,500	+18.8
Gas Fired Boilers.....November	10,000	8,700	+14.9
Jan.-Nov.	115,000	100,100	+14.9
Gas Conversion Burners.....November	9,900	13,700	-27.7
Jan.-Nov.	141,400	156,600	- 9.7
Electric Refrigerators.....November	245,500	246,400	- 0.4
Jan.-Nov.	2,829,800	3,135,400	- 9.8
Electric Freezers.....November	89,400	60,800	+30.7
Jan.-Nov.	1,035,300	877,600	-15.9
Electric Ranges, Free-Standing.....November	73,700	81,500	- 9.6
Jan.-Nov.	725,800	863,000	-15.9
Electric Ranges, Built-In.....November	55,600	35,300	+27.8
Jan.-Nov.	484,700	388,200	+25.3
Electric Storage Water Heaters.....November	66,700	73,100	- 8.8
Jan.-Nov.	754,900	739,500	+ 2.1
Electric Dishwashers.....November	45,200	32,800	+37.8
Jan.-Nov.	372,400	360,100	+34.0
Electric Food Waste Disposers.....November	59,400	47,700	+24.5
Jan.-Nov.	548,700	494,700	+10.9
Combination Washer-Dryer.....November	17,725	13,762	+16.0
Jan.-Nov.	146,713	167,242	- 5.0
Washers, Automatic & Semi.....November	259,335	200,775	+29.0
Jan.-Nov.	2,512,989	2,620,530	- 4.0
Washers, Wringer & Others.....November	73,700	67,021	+10.0
Jan.-Nov.	828,840	850,634	- 3.0
Electric Dryers.....November	98,972	95,640	+ 3.0
Jan.-Nov.	722,796	795,724	- 9.0
Gas Dryers.....November	43,527	47,515	- 8.0
Jan.-Nov.	330,732	360,844	- 8.0
Vacuum Cleaners.....November	293,609	251,123	+16.9
Jan.-Nov.	2,978,082	2,952,671	+ 1.0
Metal Furniture.....November	*	*	+31.0
Jan.-Nov.	*	*	+ 5.0
†Television.....November	439,904	574,646	
Jan.-Nov.	4,507,710	5,825,804	-23.0
†Radio.....November	960,383	993,491	
Jan.-Nov.	7,185,537	7,937,069	- 9.0
August	150,810	147,536	+ 1.9
Compressor Bodies.....September	238,166	187,000	+20.0
Jan.-Sept.	2,811,238	3,334,171	-12.4
Steel Barrels & Drums.....October	2,790,242	3,116,774	-10.0
Jan.-Oct.	26,560,416	30,709,419	-11.5
Steel Pails.....October	6,247,467	6,313,040	- 0.9
Jan.-Oct.	62,298,004	64,291,768	-15.0
Typewriters.....November	114,829	*	*
Jan.-Nov.	1,123,583	*	*

† Output

* Not Reported

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, Air-Conditioning and Refrigeration Institute, and U.S. Dept. of Commerce.

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the
STEAK!
not the
SIZZLE...



Here's meat that shows
in your company's ledger . . .
PROFITS!

Stanley combines the
sureness of trained hands . . .
experienced heads . . .
and modern equipment . . .
to work for you producing
WIRE FORMS . . . SPRINGS
and **METAL STAMPINGS.**

Here's **STEAK** . . . Service
that spells satisfaction . . .
without the costly trimmings.

One job . . . one opportunity
to quote . . . to show you we're
interested in bringing you
the **STEAK** is all we ask.

Call us today.



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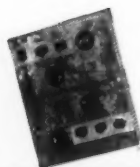


Vendo EXPORTS in CHICAGO MILL CONTAINERS

"It is important that our machines deliver trouble-free service and therefore, we make certain that our overseas shipments arrive in trouble-free condition by using Chicago Mill cleated plywood containers. These containers protect the finished surfaces and mechanisms of our machines against the many handlings, severe shocks and strains encountered in overseas shipments. Pilferage is discouraged. The plywood panels provide an excellent sur-

face for complete marking, printing or product advertising. The Chicago Mill containers are easy to assemble and handle. Their cubic displacement and weight are less and the strength is greater. When the Vendo Company sends its machines from Kansas City, Missouri to a distant spot overseas, we make sure that they are packed 'First Class' in Chicago Mill containers."

LARGE OR SMALL — CHICAGO MILL MAKES 'EM ALL!
A COMPLETE LINE OF CONTAINERS FOR EVERY SHIPPING PURPOSE!



FREE! Illustrated Catalog Describing Chicago Mill's Shipping Containers and Services!



PALLET BOXES—
Wire Bound



PALLET BOXES—
Hinged Corner



Cleated Boxes



E-Z Pak Coated Corrugated
(Watkins type)



Wirebound Crates



Wirebound Boxes



Corrugated



Hinged Corner Crates or Boxes

CHICAGO MILL AND LUMBER COMPANY

33 South Clark Street

Chicago 3, Illinois

PLANTS

- CHICAGO, ILLINOIS
- GREENVILLE, MISSISSIPPI
- HELENA, ARKANSAS
- ROCKMART, GEORGIA
- TALLULAH, LOUISIANA

safe transit

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DANA CHASE PUBLICATIONS
York Street at Park Avenue
Elmhurst, Illinois

editorial voice of the national safe transit program

devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

Package Tester Ideal for Parcel Post Sizes

To extend the range of L. A. B. Corp.'s transportation testing equipment, this 100-pound capacity vibration package tester has been developed to be used with the L. A. B. 100-pound drop tester for performing package tests in



accordance with National Safe Transit Committee "Project 1A" Procedures. The machine, designated as Type 100 SVM, is said to be a compact, low cost unit, completely self-contained and ideally suited for performing laboratory package tests on parcel post-size packages and other containers too small to be tested economically on larger machines. For complete information, write L. A. B. Corp., 1005 Onondaga St., Skaneateles, N. Y.

Self-Serve Markets to be Highlighted at Conference

A penetrating study of the packaging problems and trends in Canada's food industry and self-serve markets will highlight the 1959 Canadian Packaging

Conference March 10-11 at the King Edward Hotel, Toronto.

Sponsored by the Packaging Association of Canada, the voice of Canada's packaging industry, this year's conference has again been specifically designed to appeal to top level executives and technical personnel of every company using and supplying packaging materials and machinery in Canada. J. A. McAvity, E. S. & A. Robinson (Canada) Ltd., Toronto, is general conference chairman.

Portable Elevator for Vertical Material Handling

"The Portable Elevator for Vertical Material Handling" is the title of a new 20-page booklet which is said to be an industry-sponsored basic reference guide on portable elevators currently used in industrial material handling.

The new booklet by ALTAPEM is primarily a reference guide to create a better understanding of this product and its uses in industry. The literature should be beneficial reading for materials handling men, purchasing agents, and industrial supervision. It gives helpful data on how to select portable elevators, and reviews the various types. It also offers basic information on lifting-lowering mechanisms, sources of power, lifting-lowering carriage variations, and outlines several other special features of the portable elevator.

This new 2-color, 8½" by 11" booklet is available without cost from the Special Projects Editor, METAL PRODUCTS MANUFACTURING, Elmhurst, Ill.

Stand-Up Electric Lift Truck

The Heifred Corp., Church & Elm Sts., Willoughby, Ohio, has introduced a new stand-up electric lift truck which is said to feature compact design, full vision of forks from driving position, direct steering on roller-mounted 15½-inch ring gear, fast maintenance of all

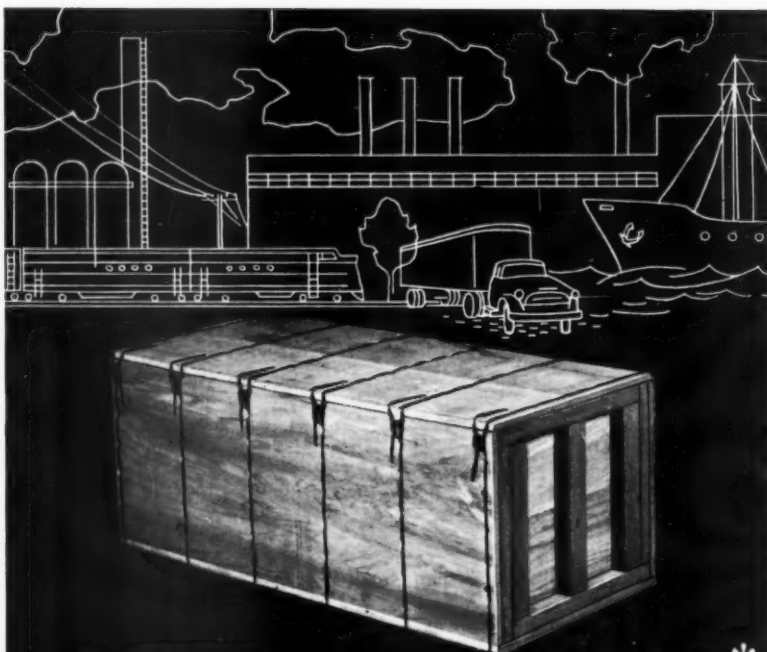


electrical contacts, and hydraulic controls which are mounted on the undersides of the hinged top, optional 360° steering, etc.

NSTC, Inc. Offers New Service

Implementing its recently-announced policy of providing new and improved services for industry, NSTC, Inc., announces the publication of an NSTC Certified Products List. With the nation pointing toward a stronger national economy in 1959, the role of NSTC, Inc. as an aid to the manufacturing and shipping industry becomes increasingly significant. The new list, to be published on a quarterly basis beginning April 1, 1959, will serve to focus attention on pre-shipment tested methods.

For information, write NSTC, Inc., 1145 Nineteenth St., N. W., Washington 6, D. C.

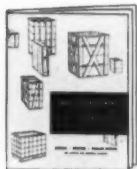


9 OF THE TOP 10*

INDUSTRIAL COMPANIES SHIP IN WIREBOUND CONTAINERS

WHY? These nine companies make such widely varying products as automobiles, steel, electrical goods, petroleum and processed foods . . . and use Wirebound Containers to ship from over 200 different plant locations . . . to adequately protect their products in shipment and cut costs through savings in time, breakage and container costs.

Wirebounds can be adapted to your needs. The light-but-rugged woods, reinforced with strong steel wire, can be custom-designed to do any specific job better . . . whether you require a tough, rigid container or an unusually resilient one . . . a "see-through" crate or a bin to hold bulk product.



Follow the lead of these leading companies . . . the businesses that know how to get the most out of every dollar spent. Ship in Wirebounds!

Write for the informative booklet, "WHAT TO EXPECT FROM WIREBOUNDS"

*Source: The Fortune Directory of the 500 Largest U. S. Industrial Corporations

**WIREBOUND BOX
MANUFACTURERS ASSOCIATION**
Dept. MP-29, 222 West Adams Street, Chicago 6, Ill.



Industry news

Admiral Expects Big First Quarter Gain

A 20 to 25-per cent increase in Admiral appliance sales in the first quarter of 1959 over the same period, 1958, was predicted by Ross D. Siragusa, president of Admiral Corporation, at a two-day meeting in the company auditorium. He added that "Freezers are going to be 'big' in 1959."

Bodie Stahlschmidt, sales manager of the freezer and air conditioners division, forecast that \$300,000,000 worth of room air conditioners (at retail value) will be produced by the industry.

Regarding television sales, R. D. Siragusa Jr., sales manager of the television division, remarked that the television industry mark would be six million units in 1959, compared with five million-plus in '58.

GAMA Launches "Gold Star"

"Gold Star Range Program," an undertaking to adopt universal superior quality standards by gas range makers, was announced by officials of the Gas Appliance Manufacturers Association's range displays at the Furniture and Merchandise Marts in Chicago, \$30,000,000 worth of promotional support is assured for the "Gold Star Year" program.

According to John P. Wright, president of George D. Roper Corp. and chairman of GAMA's domestic range division, every manufacturer will produce an automatic ignition model for ovens, broilers, and top burners. Wright added that "as class, the 1959 ranges will account for literally hundreds of functional, convenience, and cooking-insurance improvements over past models."

Unitary Air-Conditioning Certification Program

A certification program which will guarantee the public national standards in unitary air-conditioning equipment will be put into effect by the Air-Conditioning and Refrigeration Institute. Twenty-four of the nation's leading manufacturers of air-conditioning equipment will participate in this program, which offers the right to use the Institute's seal and certificate after certain standards have been met.

Developed in cooperation with the National Warm Air Heating and Air-Conditioning Association, the ARI program covers residential and commercial type air-conditioners of less than 135,000 British Thermal Units per hour cooling capacity. A national publicity campaign,

to Page 90 →

Loading system designed to eliminate damage to rail shipment

PHOTOS COURTESY SPARTON CORP.

A VARIETY OF PRODUCTS can be loaded and shipped virtually without damage on many of the country's railroads today, due to a new system of boxcar bracing. Utilizing crossmembers, deckboards, and side rails, the system allows the shipper to load mixed carloads, less than carload lots, or a solid car of one product.

Loading of any car should be made in equal units, and each unit should be braced as a single load. Deckboards double as bulkheads, and are used to brace the end of each unit, being placed with the smooth side against the load. Sufficient crossmembers are used to protect lading from both fore and aft impacts. Each crossmember will brace up to 4,000 pounds, two members 8,000, etc.

System allows doubledecking

The system allows the shipper to deck to the roof of the car, making it possible to load the car to full capacity. In doubledecking, deckboards are placed with smooth surface up, and crossmembers are so placed that deckboard cleats will hold them from fore and aft sliding.

In bulkhead loading, the crossmembers are turned for greatest load factor, with metal edge facing the load. Using

standard deckboards, they are placed smooth side against load, and when bulkheading between lading, the deckboards are placed back to back with crossmembers in between.

Cars loaded right to door

Doorway members, which enable the shipper to load right up to the door, have two fixed pins on one end and a spring-loaded two-pin latch on the other end. Door members are easily removed from inside or outside the car. To install, the fixed-pin end is inserted first, the spring-loaded latch is pulled back, and the door member is swung into position.

In removing the adjustable wallmembers, the fingers are placed in the top slots of the end of each rail and pull out on locking bracket to release the spring-loaded bracket. By lifting up, the rail may be removed from the top and bottom T-slot. To install wallmember, the rail is placed on the wall so that bottom bracket on the wallmember is in the same T-slot in a horizontal plane. With a pushing motion, the removable section is placed against the wall so that the locking bracket is in the T-slots.

In unloading cars equipped with the



Door members have two fixed pins on one end and a spring-loaded two-pin latch on the other end. Upper member is in position, and lower member, with spring-loaded latch pulled back, is being installed.

new system, the crossmembers are removed first and stacked on the dock. The doorway members are next. The car is unloaded from the doorway to one end of the car. When one end is unloaded, the empty space may be used to store equipment as the other end of car is unloaded. When car is empty, equipment is stored in one end, and secured with a deckboard and crossmembers.

For further information, contact Special Projects Editor, MPM, Elmhurst, Ill.

Safe loading strength is 4,000 lbs. per crossmember. To utilize this strength when bulkheading, position the crossmember so that metal face is toward load.



Using standard deckboards, place smooth side against load. When bulkheading between lading, place deckboards back to back with crossmembers in between them.



Wallmembers are installed by placing the removable section against the wall and sliding it down so that the locking brackets are in the T-slots provided.

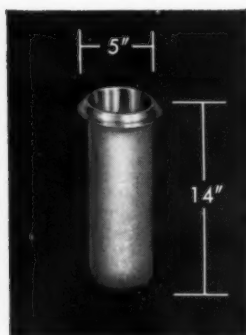


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QUANTITY**

You'll save tooling costs, too, when you let our production lines serve you.

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TIME**

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Industry News

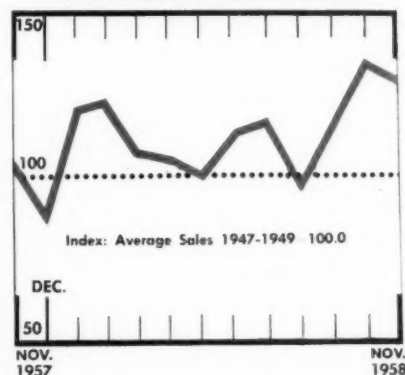
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designed to acquaint the public as well as the retail and wholesale marketers with the meaning of the seal, will be undertaken in conjunction with the program.

Used Machine Tools Maintain Gain Over Sales of Nov., 1957

Despite a slight drop of five per cent during the month of November, 1958, sales of used machine tools throughout the United States remained a healthy 17.1 per cent above sales totals of

Used Machine Tool Sales



Source: Machinery Dealers National Association, Washington, D. C.

November, 1957, the Machinery Dealers National Association, Washington, D.C., has reported. The report also showed an increase in the number of machine tools invoiced to purchasers at \$200 or more each. This number had a 7.7 per cent increase during November, 1958.

The compilations cover only sales in which the ultimate user of the equipment is invoiced, and not sales to other dealers. No new machine sales, domestic or foreign, are included.

Texas Instruments to Merge with Metals & Controls

Texas Instruments, Inc., Dallas, Texas and Metals & Controls Corp. of Attleboro, Mass. have agreed to recommend a merger to their respective stockholders. C. J. Thomsen, Director and Vice-President of Texas Instruments, will become President of Metals & Controls once the integration has been completed.

Texas Instruments is presently engaged in the manufacture of electronic and electro-mechanical systems, apparatus for civil and defense departments of the government, and semi-conductor devices, including the transistor. Metals & Controls fabricates clad metal prod-

ucts for use by electrical, nuclear, and other industries, and manufactures thermostatic controls for industrial and motor control.

Croname to Process Aluminum "Spangle Sheet"

Croname, Inc., Chicago decorative metal manufacturer, has completed a licensing agreement with the Aluminum Co. of America, Pittsburgh, to process Alcoa's newest product "Spangle Sheet", John C. Anderson, Croname vice-president in charge of product development, announced.

"Spangle Sheet", a new aluminum alloy, is given a highly exaggerated and visible grain structure by a controlled mill process. A finishing process develops the grain structure into millions of tiny satin and bright facets to create an overall decorative effect within the metal. The material can be anodized and dyed.

Application forseen for the new alloy includes refrigerators and freezers, radio and television, automotive interiors, control panels, and interior architectural paneling.



COMING FEATURES

DESIGN

NEW AUTOMATIC COMBINATION WASHER-DRYER NOW IN MASS PRODUCTION

FABRICATION

FABRICATION OF STAINLESS STEEL
THE ALUMINUM BASE ALLOYS

FINISHING

HOT SPRAY PAINTING —
A USEFUL TOOL
PICKLING PROCEDURES FOR
PORCELAIN ENAMELING
PLATING WIRE SHELVEING

GENERAL

COLORS, BUILT-IN APPLIANCES
AND PLUMBING WARE

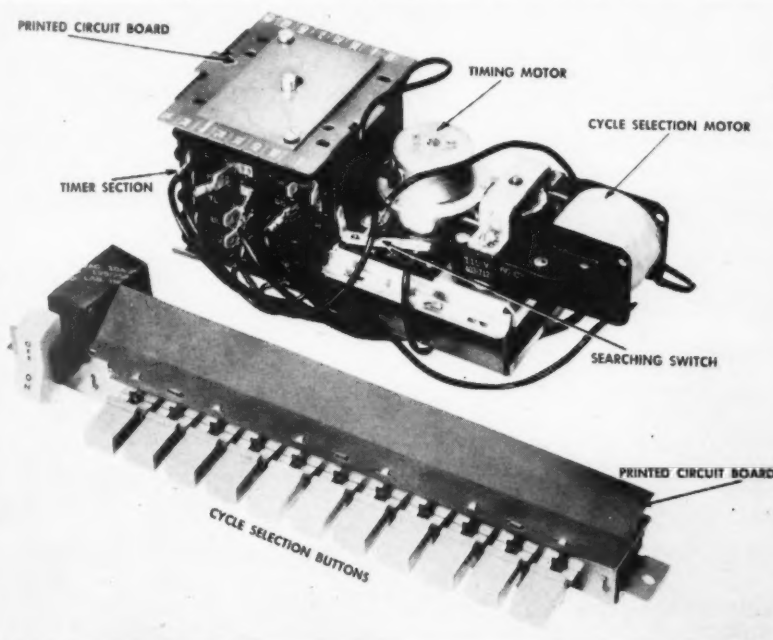
Single-button control for multiple washing and drying operation

A NEW CONTROL SYSTEM, identified as the Cycle-Set Power Timer, is being used by two home laundry equipment manufacturers in their 1959 top-of-the-line models. Each unit is tailored to meet each appliance manufacturer's specifications of cycles and appearance of the push buttons on his control panel, and arrangement of components within the machine. Developed by Controls Co. of America, the new control is said to be the only one available that automatically meets all requirements. A similar control sets up the proper operating cycle for dryers.

The Westinghouse laundry twins feature controls with which a single push button automatically selects 11 different wash, soak, rinse, or tint programs.



Top view of control system for washers points out the location of basic components.



Joint U.S.-German Steel Plant Now Producing

A modern, joint-venture steel processing plant now in full-scale production has been announced by the Armco Steel Corp. of Middletown Ohio and the August Thyssen-Huette A.G. of Duisburg-Hamborn, Germany. This marks the first time that a United States steel corporation has invested capital directly in the German steel industry.

Production Equipment Leasing Increases

Long-term leasing of production equipment by the fabricated metal products industry spurted to an all-time high in 1958. Total dollar volume of equipment on lease in the fabricated metal products industry reached \$12,000,000 in December, 1958, as compared with \$9,000,000 a year ago. This amounts to a gain of 33 per cent.

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R. F. KENDIG, York St. at Park Ave., Elmhurst, Ill.....	Terrace 4-5280
KARL J. SHULL, 608 Midvale, Los Angeles 24, Calif.....	Granite 7-8824
FRED JAMESON, 821 Edinburgh St., San Mateo, Calif.....	Diamond 3-8806

AM president

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1. Products designed to provide basic consumer benefits rather than "gimmicks and gadgets."
2. Increased emphasis on quality control in engineering and manufacturing.
3. A change in advertising to more clean-cut presentation of basic consumer-benefit information.
4. Publication of a "buyer's guide" booklet to be distributed by Kelvinator dealers, offering to consumers objective counsel on appraising appliance benefits in relation to price, and a series of comparison charts for the customer herself to fill in when shopping for a new appliance.
5. An improved dealer franchise to be offered on a selective basis.
6. Ten scholarships to the annual summer NARDA Institute of Management school for appliance retailers, to be awarded to outstanding Kelvinator dealers.

Industry news

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elected to new or different posts by board action at a meeting recently.

Joseph L. Block, formerly president and chief executive officer, will become chairman and remain chief executive officer.

Philip D. Block, Jr., formerly senior vice president in charge of raw materials, has been elected vice chairman and will assume the responsibilities of the chairman in his absence.

John F. Smith, Jr. has been elected president. He has been vice president in charge of sales since 1952.

Hjalmar W. Johnson, vice president in charge of steel manufacturing for the last ten years, has been elected vice president in charge of planning and research.

Francis M. Rich becomes vice president in charge of steel manufacturing after serving for 9 years as general manager of Inland's Indiana Harbor Works.

Robert M. Buddington, who has been general manager of sales since 1954, has been elected to succeed Smith as vice president in charge of sales.

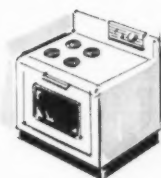
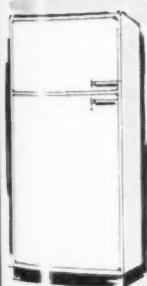
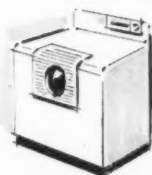
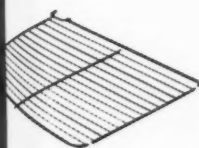
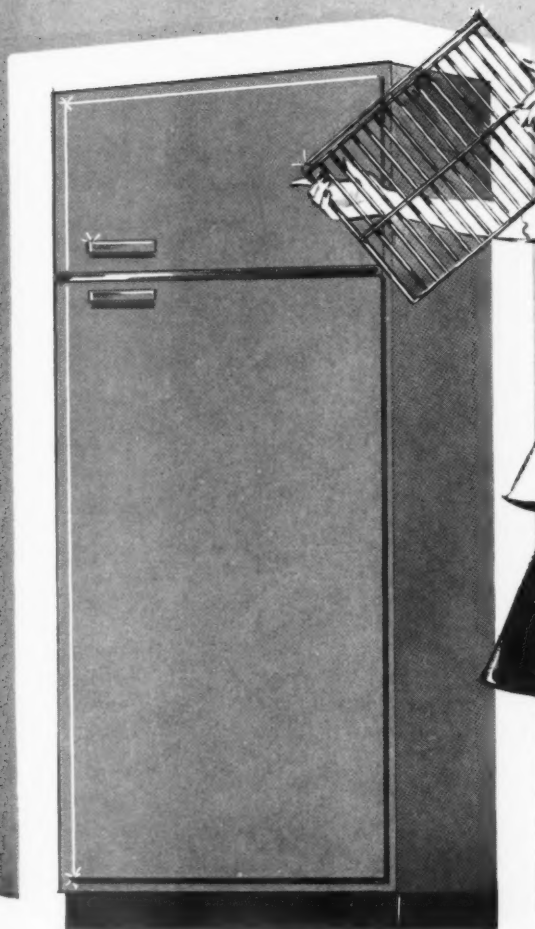
Lemuel B. Hunter has been elected to the newly-created position of vice president-administration, after serving for two and one-half years as assistant to the president.

Carl B. Jacobs, who has been general manager of raw materials, succeeds Philip D. Block, Jr. as vice president in charge of raw materials.

The average age of all the company's officers is 50.

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to her**



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Contract Wire Division

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ALBION, MICHIGAN

...to use the very Best

Naturally—she wants far more than exterior beauty and styling. She also wants the convenience of practical long lasting, easy-to-maintain refrigerator shelving, baskets and other necessary components. For continued satisfaction and repeat purchases she must have the type of product engineering that will guarantee more years of durable, dependable, maintenance-free operation from each working part of her new appliance.

Remember, she's the expert and your best home front salesman, too. Consequently, you just can't afford to compromise quality for price at any point. Your new appliance may call for refrigerator shelving, baskets, trays, freezer components—or oven racks, element frames, side runners—perhaps even grills and guards. Then why not remember the one experienced source for your welded wire components? Union Steel's half-century of leadership in the design, fabrication, 100% inspection and on-time delivery of better, more dependable wire products can be yours at this very moment.

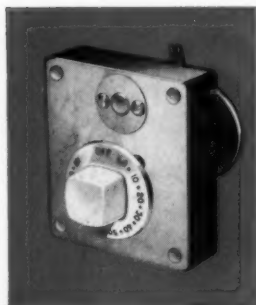


Union Steel's sales-engineering staff is at your disposal. A phone call to ALBION, NA tional 9-2181 will bring an immediate answer to your request.

TEP NOW OFFERS BROADER SERVICE AND NEW PRODUCTS

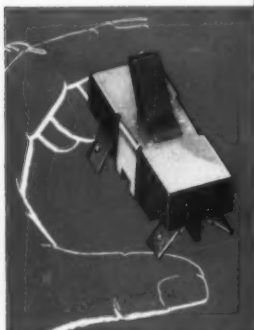
1 SINGLE POSITION INFINITE CONTROL

The N-14 Control enables a heating unit to deliver all or any portion of its heating capacity. Proportioning of heating capacity is accomplished by a pre-setting of the control knob, thereby controlling the time of contact dwell. Furnished in various time cycles depending upon your requirements, i.e., from 5 R.P.M. to 1/2 R.P.M. cycle motors.



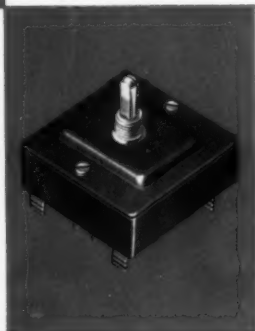
2 TOGGLE SWITCHES

The unusual simplicity of the new TEP Toggle Switch design achieved by Tuttle Research Engineers, now provides a dependable, top-quality switch at lower cost. Considerably smaller than comparative switches offering the same variety of contacts, it includes provisions for four-way wiring connections. There are only 11 working parts, and the complete switch weighs less than one ounce.



3 HEAT SELECTOR SWITCHES

Series 3000 rotary snap-type switches, also manufactured by TEP for electric ranges, air conditioners, space heaters and related applications, feature positive, trouble-free contact action and 7-heat selection. They are available either with or without a pilot light and with different shafts and handles to suit your needs. Write today for sample and quotation.



4 TUBULAR HEATING ELEMENT

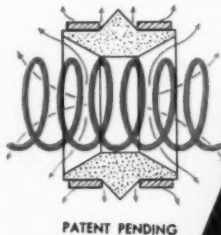
This element is ideal for a wide range of applications. It's highly efficient in heat guns, hair dryers, space heaters, hot food vendors, photo print dryers, and other products where air is to be heated while flowing through a tube or nozzle. It is controlled thermostatically and furnished in ratings from 500 to 2000 watts at 115 or 220 volts.



For Appliance and Related Applications

Here is the present line of Tuttle products designed to help you manufacture better electrical products. New in the group are the single position infinite control and the tubular heating element. The Single Position Infinite Control was formerly manufactured and sold by Tuttle & Kift, Inc., and we are pleased to announce our acquisition of the manufacturing and sales rights to this highly efficient control. The Tubular Heating Element was recently designed by us for use in hand dryers. It has many other possible uses. We would welcome the opportunity of working with you on any of your problems involving any one or more of these, or other electrical products. Merely call or write.

Cross-sectional view of new TEP insulator and cross-bar design. More space for air circulation assures better heat dissipation, longer wire life.



5 OPEN COIL HEATING ELEMENTS

The design and manufacture of "open coil" heating elements has long been a major TEP service to the appliance industry. TEP has pioneered many new and exclusive features, such as the one illustrated with diamond-shaped insulators, now used by leading manufacturers. Call or write today for TEP design and engineering assistance on any job. There is no obligation.



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